FOOD

Its Composition, Preparation, Combination, and Effects with Appendix on Cooking

DR·J·H·TILDEN

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Its Composition, Preparation, Combination, and Effects, with Appendix on Cooking

BY

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The people are beginning to realize the need of a knowledge of Food—Its Composition, Preparation, Combination, and Effects

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Foreword

THE part played by food in building disease is so little understood by the people generally that there will be no hope of raising the standard of health so long as this remains true. It has been my endeavor for the past two decades to enlighten the few with whose attention I have been favored. The favorable reception of my previous book on the subject has encouraged me to write this, a second volume on the same subject.

Overeating is so common, and its sequences are so little known, that too much cannot be said on the subject of food, in its relation to health and disease. Every person should have sufficient reasoning power to realize that tainted food—food in a state of decomposition—is dangerous to health when eaten. This being true, why is it not dangerous to health to take into the stomach more pure food than can be digested? Decomposition is sure to follow, and, certainly, decomposition taken in is no more infectious than the decomposition developed within the alimentary canal.

J. H. TILDEN.

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FOOD

ITS COMPOSITION, PREPARATION, COMBINATION, AND EFFECTS

INTRODUCTION

THE subject of food—its influence in health and disease; its preparation and combination; when to eat and when not to eat—is one of the great subjects of the day.

Laymen are demanding knowledge on the food question. Physicians are waking up to the necessity of securing knowledge that will help them feed their patients.

When the people learn the fact that every disease can be successfully treated, and treated more satisfactorily with diet than by any other plan, the demand will be so great for dietetic treatment that physicians will find it necessary to prepare themselves for treating disease by correcting dietetic and other habits.

The demand for dietetic treatment of disease is already great enough to justify my bringing out a book, or books, covering the subject.

Those who have given the subject of food no thought may be a little skeptical. In all probability many readers will know from experience and observation that my suggestions about food combinations are absurd. It will take a long time to change the current of opinion, from an ignorance of the evil influences of overeating, to a belief in it, which will cause a change in keeping with the belief. When I recommend that meat and bread be not eaten together by those with impaired health, my critics will ask: "Does not the whole world of people eat meat and

bread together?" When I say that bread and other starchy foods should not be eaten with sugar, preserved and cooked fruits, my critics will show how absurd are my recommendations; for they will say: "Is it not a fact that people generally mix or combine starchy foods with cooked fruits and sugar?" And when I maintain that coffee, tea, tobacco, and alcoholics are injurious, my friends will point to the fact that these drugs are in common use by nearly all the people all the time. I can, however, offset all these criticisms and conventional beliefs with the indisputable fact that the average length of life is about forty years—one-third the normal length of time man should live. A sad reflection on man's intelligence; for, as I contend and can prove, man shortens his life by his habits.

My critics will no doubt admit that those who drink sometimes get drunk; and this means that they are alcohol-poisoned. I believe that all rational beings will admit that there are people who eat too much, work too hard, enjoy too much, sorrow too much, bathe too much, clothe themselves overmuch; in fact, I believe my severest critics will admit that it is the disposition of most people to go to extremes in one or more directions. This admitted, I must declare that in this fact we have the cause of disease; for excess in all lines breaks down resistance by using up nerve energy. When energy is used up, the functions of the body are not carried on properly; then waste is retained, which poisons the body and causes it to become autotoxemic.

A well man may indulge in any and all vices for a time, without apparent harm. If he has large resistance, a happy, contented mind, and is inclined to avoid excess, he may live to eighty or a hundred years of age. Such a man has a limit to his habits beyond which he will not go—no, not even to please a friend. This temperament has either one vice that is indulged in to the full, or sev-

eral vices that are not pushed beyond the influence experienced from the fully indulged single vice. It has a safety-valve, so to speak, in a wise caution. It indulges up to a given effect, and when that is reached, no more will be indulged in until the used-up nerve energy is restored. This is not deliberately planned and wisely executed; for the individual is probably not aware that he is different from other people. Indeed, I have found such people innocent of any knowledge of being possessed of self-protection, and when called upon to give expression concerning the influence of bad habits, they will usually say, concerning diet or temperance—self-control or self-restriction: "I eat, drink, smoke, or indulge my wants as I like. I never restrict myself. I do not believe in your absurd ideas concerning food combinations. I smoke all I like, and have done so since my youth. I eat anything and everything I like; nothing hurts me. I do not believe such things cause disease. I believe that when a man's time comes he will go." So thoroughly convinced is such a man of the correctness of his attitude that he will usually work against rational reform movements. He knows that he can drink or let it alone, and he knows that other people can do the same. He will vote to keep the saloon open, because he cannot conceive the truth that the majority of drinking men are unable to abandon their destructive drinking habits so long as there is a place to buy, beg, or steal a drink.

All men with destructive habits have times when they are strong enough to go by the places where their enemy is for sale; but they also have moments of such nerve depression that they will sell their birth-right for a mess of pottage.

Drug stores, opium joints, and saloons do not tempt the sober man; but not so with the drug fiend. The laws are becoming so strict that it is hard for the drug-crazed

to buy morphine, opium, cocaine, and other habit-producing drugs.

The saloon, drug store, and doctors who give habit-forming drugs should be put out of business for the sake of those who cannot quit their bad habit so long as it is possible for them to buy, beg, or steal drugs.

There are food fiends who are as hard to control as those with the drug habit. It is impossible to keep them from overeating. As a consequence, they cannot be cured. So long as they are under watch, and being coached, they may be made better; but they have no self-control.

Medical superstition—modern medical superstition—is standing in the way of educating the people into right habits of thinking. So long as the priests of healing are self-indulgent—users of tobacco, alcoholics, coffee, and tea to excess—and abuse their health standard until their perversions are as great as those of the ignorant laity, the people will not listen to rational advice. Why? Because the entire profession is opposed to the nonsensical idea that food can possibly have anything to do with building disease.

So long as doctors teach that disease is a specific entity, and that the people cannot make themselves sick by overindulgence, just so long will there be no hope of health becoming the rule, instead of, as now, the exception.

There are a few fundamentals which should be known to every human being, to enable him to think logically, sanely, and protectively. These are: Effects cannot exist without a cause; cause is positive and effect is negative; when a positive is known, its effect may be anticipated and controlled. These propositions are universal and applicable to all phenomena.

For immediate thought and use, let us think that darkness is nothing but absence of light; death is absence of

life; disease is absence of health; weakness is absence of strength; ignorance is absence of learning; chaos is absence of order; and order is the first law of nature.

When we leave the realm of the subconscious, where we are nurtured and protected by nature, and come into the world of consciousness, it becomes our duty as sentient or thinking beings to study nature and try to understand our relationship to her—try to understand what she would have us do to build ourselves by using her. This is the duty of mind in its independent existence—it owes it to itself to make nature build it. Nature has done her part in protecting us through our subconscious lives; and she remains the same kind guide and mother. But her jurisdiction ends where ours begins. Where our minds might save us, but will not, the blessed old mother stands by and allows us to kill ourselves, if kill we will—if we cannot be taught in any other way.

It is the privilege of man to understand the laws of his being, and to use them to build himself into a perfection of health that stands for the perfect man.

It shall be my endeavor to give my readers a working knowledge that will help them to dependable health.

There are a few questions that ought to be answered right; namely: Is prohibition ever prohibitive? Does not prohibition generate a retaliatory desire on the part of those who indulge in the drinking vice? And, in their resentment at what they look upon as interference with personal liberty, do they not loan themselves to the petty crime of running, or patronizing, secret "joints"?

If the enforcement of saloon laws were in the hands of temperate officers, backed by a temperate people, the laws would be enforced. But this statement is a paradox. Why? Because in a city filled with temperate people, and officered by temperate men, there would be no saloons.

There is but one way to enforce saloon laws, and that is to have no saloons. Saloons and their patrons will not enforce saloon laws. Gluttons will not enforce laws against themselves.

Drinking is but one expression of lost self-control, the foundation for which was laid in the home, through indulged children and lack of self-control on the part of parents.

There is but one real temperance, and that should begin before birth, not after it.

Just how far this interference with personal liberty can or should be allowed to go is hard to say; for there are as many homes made poor and filled with disease, sorrow, and premature death, because of wrong eating, overeating, and too frequent eating, as there are homes ruined by drugs. The supposed need of drugs is built from health-destroying habits taught and indulged in the home—modern medical science to the contrary notwithstanding.

Those who are helpless to protect themselves from drug or eating habits should be known and taken care of by society. These people should not be permitted to buy alcohol or other drugs.

Thousands who have been ruined and have died of drug habits could have been saved if, at the critical moment, when desire had resistance mastered, it would have been impossible for them to buy, beg, or steal the much-coveted poison.

I believe that the average individual can see, if taught how, that alcohol poisoning and other drug poisonings, so far as disease is concerned, are nothing more than health under the depressing influence of a stimulating habit. Reasoning, thinking beings surely cannot look upon an enervated state of the body, brought on from drugs, as a disease in the sense that is generally under-

stood—an entity, something independent of the organism, and to be driven out by some therapeutic process.

If, then, alcohol reduces nerve energy, it simply lowers the normal resistance. The individual is in health, but his health standard is below the point where sensations are comfortable, and his energy is reduced to such an extent that he cannot perform feats of strength. The power to live is lessened, and if the habit is continued, the nerve energy will be so far decreased that death results.

This being the state of the body brought on by habitual drug action, what can be the nature of the so-called diseases caused by overstimulation from food, joy, sorrow, sensual indulgences, overwork, and the giving-way to the emotions? Is not the disease, enervation, a lowered or weakened health standard, the same as the condition brought on from the use of drugs?

Overstimulation from any cause lowers energy; and when energy is lowered, the health standard is lowered.

Disease, then, in its true sense, is lowered resistance, or health in a state of depression; and the cure can be understood by anyone capable of thinking.

To prescribe intelligently for ordinary diseases does not require great skill; indeed, it does not often need a technical medical education. But it does require technical skill to understand the cause of ordinary diseases.

If energy is reduced from any kind of overstimulation, there is but one cure, and that is: Remove the cause (stimulant), and rest.

My object in going into all this detail is, if possible, to teach the people to recognize what is known as disease as lowered or perverted health, and not a specific entity that is making war on health by establishing disease in place of health. There is no disease except impaired health; hence it is correct to speak of "bad health" and "good health."

The profession and the people generally will be better prepared for treating the sick, if they can be made to understand that there is no disease as such; that what is called disease is health laboring under a handicap; and that all the remedy needed, and all that can be used to advantage, is to understand the cause of the lowered health standard, and remove it.

I contend that those with lowered resistance must be brought back to the normal by rest of body and mind. All irritations must be removed.

Worry depresses, and, if it is not overcome, ideal health cannot be attained.

A style of eating that irritates or overstimulates must be controlled, or the enervated will be further enervated.

The child-mind is not philosophic; with it there is no unity or relationship of phenomena. The child-mind sees tobacco in general use by men and women of apparent good health; hence it decides that tobacco is not injurious. The fact that occasionally a man lives to one hundred years of age who has used tobacco for most of those years, or that someone is a moderate drinker of alcoholics the greater part of ninety years, is, by people who do not reason, recognized as settling the question that tobacco and alcohol are not injurious.

Boys see other boys smoking and apparently maintaining good health, and they decide that it does not injure boys to use tobacco.

The custom of taking drugs by most people who are sick establishes the belief that drugs cure disease. Why not? Do not most people get well who fall sick? Yes. Then, what killed those who died? If drugs cure those who get well after taking them, logic declares that drugs kill those who die.

The child-mind believes as it likes to believe; and its intelligence is not questioned when its conclusions are glaringly inconsistent. For example: Jones is given

drugs, and recovers. The conclusion accepted by all is that the doctor cured him. Brown is treated by the doctor for the same disease, and given the same drugs, but he does not recover. His death is attributed to the "infinite wisdom of God." What is the truth? Reason declares that, if the drugging cured Jones, it must have killed Brown.

The explanation of the whole phenomenon of cause and effect rests on the question of individual resistance or the amount of health which the individual possesses.

In determining the injurious effect of a given stimulation, the individual's resistance must be considered. The amount of resistance will not answer the question; for the individual who is well poised will not wear out in half the time that the one will who is not well poised.

The man who smokes incessantly and is well poised will live longer than the non-smoker who is not poised and who borrows trouble.

The woman who is well poised can have a baker's dozen of children, and live to enjoy life with the children of her youngest child; while a woman of equal energy, but who is not poised, will break down and die long before her children are grown.

I wish my readers to pay strict attention to my theory of disease; namely, disease is health perverted.

The body is a machine that is possessed of more or less reparative power, but nevertheless a machine; and, like all machines, it will last in keeping with the care given it. If it is worked hard and given but little attention, it will wear out.

Does it appear reasonable that life or energy can be drawn upon in every way continuously without rest, and not become exhausted?

Does it sound reasonable to say that the man who works and smokes uses no more energy than the man who works and does not smoke?

Is it reasonable to believe that the girl who goes to school and takes music lessons spends no more energy than the girl who attends the same school and does not take music? Suppose the girl who goes to school and takes music is fed on starchy food at every meal, eats candy between meals, and frets and worries all the time until she cannot sleep; is anyone simple-minded enough to believe that nerve bankruptcy is not staring such a young person in the face? Is there any excuse for tonsilitis and adenoids in such a subject? And will removing the tonsils and adenoids cure the irregular eating, the candy-eating, the starch-eating, or the fretting and worry?

Doctors who believe this should be sent out to feed hogs for a living. It, of course, would be hard on the hogs, but a relief to school children.

FOUNDATION OF HEALTH

No structure can be built and given lasting power without a good foundation. It matters not how splendid is the inheritance of a given individual; he must have a foundation on which his powers can rest; and that foundation is poise.

An infant can be given poise by being educated into contentment. Young children should not be handled, except just enough to be kept clean, fed, and turned from side to side occasionally. They must go to sleep without rocking or coddling. They should be taken to a quiet room, where they will be warm, and left alone, except to give them the necessary attention. They can be taught to demand, by fretfulness and restlessness, to be taken to a dark bedroom and put to bed where they will go to sleep at once and continue until morning. They can be taught to eat three times a day and be satisfied.

Nothing is so disgusting as a child that must be entertained all the time. The egomania of a child may be developed to such a degree that it loses its health.

Those people who make up the rank and file of the great army of invalids filling the hospitals and sanitariums are, almost to a man and woman, undisciplined. They have no self-discipline. All their lives they have practiced doing as they like. Many are dancing attendance to a morbid appetite. They know but little about suppressing an impulse. A very large percentage arrives at the stage where sensual gratification is the "summum bonum."

When this stage of chaos in self-control is reached, the victim is badly enervated. If he is a user of tobacco, he is going the limit; if his desires run to food, he gluttonizes at the regular meal time and eats between meals; if his taste runs to confectionery, he will eat a pound of candy at a sitting; if lust commands his attention, he probably will go to such extremes that paralysis will overtake him early in life. The neurasthenic type will complain of every kind of disease in the course of a year.

It must not be forgotten that by the time these people begin to seek health advice they are decidedly enervated; their established nerve-exhausting habits are fully developed, and master of them. Indeed, the habits are a part of them. To cure such people requires an extraordinary power to control them, as well as knowledge of how to convince them of the evil of their ways, and to make them believe that health is worth the effort they must make to overcome their bad habits.

Those with no ambition cannot be cured; for they will quickly drift back into old habits. The ambitious man and woman can be shown that they are not getting all that is coming to them. They can be convinced that by restoring all their nerve power they will increase their efficiency and come into their own.

No one is getting all that is coming to him who is sapping his nerve energy with a bad habit. The one who is smart and successful, with the handicap of one

or more bad habits, should know that he is falling far short of his capabilities.

There is a popular belief that alcoholics will help concentration; that tobacco will brighten the intellect and bring the best out of those who use it. Such beliefs are nonsensical. The unstimulated mind does its best work when normal and rested. Sleep is the only positive restorer of mental power. Non-stimulating food, carrying all the food elements necessary to build the body and mind, is all that is necessary to bring out the best in anyone.

The literature of the day is more or less marred and distorted by the effects of stimulants. Tobacco and alcohol are not logical. They never get down to reasoning out the cause and effect. Opium and cocaine write extravagantly. They paint pictures that are sometimes nude and sometimes salacious.

EATING—ITS OBJECT

The object of food is to maintain life, keep up strength or energy to do the work of life, and give potency to the mind. When serious thought is given to the real work accomplished by metabolism, is there anything in life more important? And, as a matter of fact, is there anything pertaining to man's well-being and happiness that is carried on in a more haphazard manner than the preparing and eating of food?

When intelligent men and women have digested the truths of the preceding paragraphs—have learned that disease is health perverted, that disease cannot be established until the body and mind are enervated—they surely can carry these truths a step farther and see the necessity of maintaining a normal health standard by avoiding doing to excess everything that lowers energy.

There is nothing with which man has to do that is of more importance than a knowledge of food—its com-

position, preparation, and effect upon the body; its good as well as bad effects; its conversion into brain and brawn.

There is no knowledge equal to the art of eating—to know when to eat, and when not to eat; what to eat, and what not to eat; what foods to combine, and what foods not to combine; in brief, what, when, and how to eat.

Someone has said that "hygiene of the stomach is also hygiene of the mind." This truth is so simple and self-evident that it should be apparent to everyone; but, as it is not, it should be "proclaimed from the house-tops" until the most ignorant know of it.

How many can understand how far-reaching is the expression, "hygiene of the mind"? It means that perfect mental hygiene is perfect morality, ideal estheticism, correct ethics. This being true, is not health, and how to build it ideally, the correct religion? Can there be an ideal religion—church—built on any other foundation? What is more incongruous, absurd, or paradoxical than a sick saint or a drunken teacher of health?

FOOD VALUES

Man works for his living. To make a comfortable living, these days, he must work body and mind. To do so means wearing out. To work, to think, to eat, causes a wearing-out of the organism. And man's duty to himself is to know how to do all these things at the least expenditure of force, so that he may live long and accomplish much.

In working, man should learn to do the most possible for him to do with the least wear and tear. The mind, and the mind only, can help man save his body. The best minds are in the bodies best cared for. It then behooves all of us to take care of our bodies.

Who are the skilled laborers? Who are those who elevate the standard and dignify labor, all the way from

those engaged in common day labor, to those with the most consummate skill in mechanics and technology, on to those representing the highest types in art and the professions? Those who use their minds. Mind efficiency makes skill, and the kind of skill that has a ready market. Skill, I say; not egomania. Dear reader, there is a difference! Study it, and act wisely.

To overstimulate the body and mind by food, drugs, and uncontrolled emotions, or by any other form of stimulation, is to bind up the mind's eyes and go through life in mental darkness.

Nutrition is perverted by drugs—tobacco, alcohol, and the sedative drugs; efficiency is handicapped by any influence that consumes energy and establishes enervation.

How many men go stumbling over all their opportunities because sensuality has put a hood over their mind's eyes? Many people who think they never had a show in life are mentally blinded with bad habits. Their physical eyes see the objective world; but unless this sight is accompanied by mental vision, the objects will have no meaning—will not be understood.

Without the mind the eyes see nothing; hence it is obvious that, if man desires to come into his own, he must see, and comprehend what he sees.

The difference between the man who sees with his mind and the one who sees with his physical eyes is the difference between walking and riding a bicycle; between the stage-coach and a Twentieth-Century Limited; between the automobile and a flying-machine; between drugging to suppress pain, and removing the cause of the pain; between the most skilled surgical operation, and the correcting of the errors of life on which the disease calling for surgery depends; between skilfully removing a diseased thyroid gland, and teaching the patient how to live so that health may be restored and the gland returned

to the normal; between operating for appendicitis, and removing the errors of digestion and nutrition which bring about the disease; between cutting out stone in the gall-bladder and kidney, and teaching such patients how to live to get rid of lithemia (stone-making); the difference between presribing lithia tablets or alkaline waters for the cure of lithemia, and correcting the dietetic and other habits that have brought on the disease.

I find that mankind has lived in such ignorance regarding health, and how to keep it, that it is very difficult to teach dietetics and hygiene. If man buys life insurance or house insurance, it is only after he has learned the need of it. The same is true of health knowledge. Man will not buy a protecting knowledge until he learns to know that he needs it. Then he must run the risk of buying knowledge that is worthless.

When he is awakened to the need of protection from disease, he soon learns that the profession is divided in its opinion of how he should be immunized. He quickly learns that the respectable element—the majority—of medical men believe and teach that he can be artificially immunized by vaccination, inoculation, etc. He soon learns that nothing he can do himself will save him; that all the talk about eating wrongly and practicing bad habits, etc., is "foolish"—simply "fads which beguile the unwary."

Only a short time ago the best professional men advocated drug palliation. Now the palliation continues, but all faith and hope are centered in vaccines, serums, antitoxins, etc. My labor is an endeavor to teach a few—a small percentage of mankind—that man's health, life, and happiness are within his own hands; that he is sick, inefficient, and handicapped in the race of life by reason of habits that are blindly followed because all who have gone before him have practiced them.

There are so few who really have any vital knowledge on the subject of causation, but who think they have, that I find myself endlėssly pounding, in a vain endeavor to get a few facts implanted into a few minds.

Fundamentals are positively necessary, if anyone desires a working knowledge. But I find people clamoring for more general knowledge, when they are in the painful position of not being able to apply the knowledge they have, simply because they are so indifferent to the rules or fundamental principles which would enable them to apply old as well as new information.

The reason why most people are clamoring for more knowledge before they are ready for it is because that is the style of teaching in our schools. Most children are passed along so rapidly that they do not know what they have gone over; hence the new knowledge is not digested, because rules that would enable them to assimilate it are passed over and not understood.

If the reader finds me reverting—iterating and many hundred times reiterating—in these articles on food, its composition, preparation, combination, and effect, my only apology is that I find so few who really know what I am endeavoring to teach.

SIMPLE CLASSIFICATION OF FOODS

Air, Heat, Cold, Light, Sound, Electricity are elements as necessary as food, if, indeed, they are not the most important food.

Organic	Nitrogenous (protein)	Proteids; e. g., casein, myosin, gluten, legumin
		Albuminoids; e. g., gelatin
		Carbohydrates; e. g., sugar, starch
		Fats; e. g., olive oil, butter
Inorganic	Mineral matter; e. g., sodium, potassium, lime, phosphorus, chlorin	
	Water	

—HUTCHINSON.

AIR

Air is not classed as a food; yet it is the most important food. We can live without the ordinary foods from thirty to forty days, and we can live without water for a few days, but we cannot live without air for more than a few minutes.

Air is the gaseous substance that envelops the earth and forms its atmosphere. It consists almost entirely of the gases oxygen and nitrogen, which are merely mixed and not chemically combined.

An ordinary-sized man is supposed to take through the lungs about two thousand cubic feet of air each twenty-four hours. It is from the air that we secure our greatest supply of oxygen.

Air at sea-level has a pressure of about fourteen and three-fourths pounds to the square inch. It decreases about one-twentieth of a pound per square inch for every ninety feet of altitude. High altitudes cause a quickening of the pulse and breathing. Most people have an idea that there is much danger in going to a high altitude quickly. There is very little discomfort, and almost no danger, to persons in good health.

It is said that, whatever the altitude, the composition of the air is always the same; namely, 21 parts of oxygen, 78.06 of nitrogen, 0.94 of argon, and a trace of carbonic acid.

The only change in the composition of the air in high altitudes is an increase in ozone. The variations of the chemical composition of the air do not account for the evil effects experienced in high altitudes; hence the effects must be caused by temperature, pressure, and the action of the sun's rays, which strike more perpendicularly in high than in low altitudes. At an altitude of 4,500 to 5,000 feet the temperature will mark a difference of ten to twelve degrees Fahrenheit in the sun and in the shade.

If the bulb of the thermometer be covered with black cotton, the difference will often reach sixty degrees Fahrenheit. This should warn those in delicate health to prepare themselves with a proper amount of clothing when going into high altitudes. It should not be forgotten, however, that the cold of high altitudes is more tolerable than that of low altitudes.

The sun, however, does not melt snow unless accompanied with warm air. Black or dark clothes retain the sun's heat and enable the traveler to keep warm in a temperature that would be very uncomfortable at sea-level.

The absence of wind and humidity in high altitudes gives comfort, whereas in low altitudes, with a much higher temperature, those who are sick and of low resistance will suffer from the cold.

Altitude.—Snow does not melt in high altitudes, even when the sun's rays are quite warm, until the air becomes warm. Snow, or white clothing, reflects the sun's rays; hence dark clothing should be worn in winter, and white or light-colored clothing in summer.

As an experiment: Place a dry leaf on a bank of snow where the sun is shining; in a little while it will be seen that the snow under the leaf is melting.

Absence of wind and humidity causes high altitudes to be comfortable places to live.

Mountain air is so dry that putrefaction does not occur to the same extent as at sea-level. In high altitudes meat will dry and cure without salt. Desiccation is effected before decomposition can set in. At St. Bernard, in the Swiss Alps, the corpses of men and animals never decay. The dead are placed in morgues, where they are preserved indefinitely—a form of immortality.

The air is so rarefied in high altitudes that patients are made quite nervous because of the absence of noise.

Sound does not carry, because the air is not dense enough to transmit it.

It is said that the absence of noise causes a feeling of sadness.

The effect of altitudes ranging from six to twelve thousand feet, on one seeking health, will be at first, while becoming acclimated, that of a feeling of warmth on the skin. The lips will redden, and the eyes will flush. For a while one will be troubled with insomnia; a slight palpitation; or, if the heart is weak, the palpitation may be severe. There will be a feeling of dyspnea (shortness of breath); dizziness; and sometimes headache. The urine is dark, and constipation is the rule; and, from the first, the appetite is increased.

In a short time the skin becomes a tan color. The lips, nose, and hair become so dry that salves and vaseline are used to secure relief from the dryness. Strength increases, and long walks, and even mountain-climbing, do not fatigue until overeating brings on the tired feeling peculiar to food poisoning.

There is mountain sickness, which is said to be unavoidable in altitudes of from twelve to fifteen thousand feet, but not equally in all countries—probably the result of overeating and fatigue. The exhilaration caused by the mountain atmosphere induces the traveler or sightseer to exercise to excess; this uses up so much nerve force that imperfect digestion results, following which comes intestinal auto-intoxication; and that is what mountain fever is.

Mountain-climbers are not equally subject to mountain sickness. This, of course, is true of every section of the country. It is said that the lack of oxygen, the increased cold, and the fatigue have much to do with bringing on mountain sickness. Obviously harm must follow an increased appetite and a decrease in oxygen supply.

The symptoms of mountain sickness are a feeling of growing malaise; pains in the legs, especially the knees; the mouth fills with saliva; sickness of the stomach, followed by vomiting of food; and, in severe attacks, bilious and even blood vomiting. In the advanced stages of the disease, pain in the bowels and diarrhea set in.

According to Paul Bert: "If the rarefaction corresponds to pressure existing at 6,000 feet of altitude, the oxygen diminishes thirteen per cent; at 9,000 feet, twenty-one per cent; at 25,000 feet, fifty per cent." He thinks oxygen starvation causes death in these high altitudes, and experiments that he has carried out have proved that he is right.

By "becoming acclimated" is meant that the blood acquires an increased capacity for absorbing oxygen; which means an increase in the red corpuscles and an increase in the iron contents. This being true, patients suffering form anemia, and especially chlorosis, will find benefit in living in high altitudes.

This is according to the best medical authority. I will say in this connection, however, that such diseases are brought on from imprudent eating. My experience is that anemic and chlorotic patients eat foods that are devoid of oxygen, until they lose their power for carrying oxygen. Why should not this be true? Nature removes an organ no longer used. If oxygen is not taken into the system in large enough quantities to supply work for the red corpuscles, there will be a gradual diminution of these corpuscles to correspond with requirements. High altitudes force breathing; hence the demand for more blood corpuscles, and the supply.

To those who are anemic or chlorotic I will say: If resort to a high and dry altitude cannot be taken, do not be discouraged; stay at home and get well. Stop sugar-, candy-, and cake-eating; use sugar in foods very sparingly. Eat uncooked fruit, also salads made from fresh, crisp

vegetables, or a slaw, every day; and teach yourself deep breathing.

Pulmonary tuberculosis is a disease supposed to be best treated when sent to high and dry altitudes. This supposed benefit is not without its drawbacks. All lung cases with a high pulse-rate should seek as dry a climate as possible, but avoid altitudes more than a mile above sea-level.

I have learned from observation that those who are well advanced with pulmonary tuberculosis, and who have a high pulse-rate, die off very rapidly when brought to Denver.

If it is a fact that more lung capacity is needed in high altitudes, is it wise to force diseased lungs to expand? Oxygen starvation is one of the symptoms of tuberculosis, due to imperfect lung action. The lungs of these subjects are not used to their full capacity, and, as the disease advances, breathing grows more shallow, because the lungs grow more sensitive to the air. Cold air irritates and causes coughing, and, to avoid coughing, the patient learns to breathe in a more shallow manner all the time; and, of course, the less oxygen taken in, the less food is digested, and the farther away from health the victim drifts.

Sleeping-porches and other devices for furnishing fresh air and a greater oxygen consumption have been a dominating fad since a few years ago, when it was the custom to have patients sit out of doors in the coldest weather—wrapped, of course, enough to keep warm.

Obviously both plans are rather more detrimental than good. The object is fine, for it is necessary to have as pure air as possible; but the good is, according to my way of thinking, more than offset by the irritating effect of the cold on the lungs. Reader, stop and think: These patients are in heated houses all day, and some of them in superheated houses. At night they breathe an atmos-

phere many degrees colder than it is throughout the day. The house temperature through the day is seventy degrees Fahrenheit, or more; while on the porch it ranges, in Denver, from thirty-two degrees above to ten degrees below zero. The range is from thirty-eight to eighty degrees. Can anyone with common-sense believe that a weak, diseased lung will thrive subjected every twenty-four hours to such extremes of temperature?

If the above is true, the modern treatment of this disease could not possibly be much worse.

If houses are as clean as they should be; if bedding is as clean as bedding should always be, patients will do much better in a closed house—closed up for the entire night—and fire enough to keep the night temperature within ten or twenty degrees of the day temperature.

All of us (doctors and laymen) must go through the fresh-air insanity. Converts to new thoughts, or old thoughts, are always near-sighted, enthusiastic, and even fanatical in their application. The fresh-air craze has surely killed its quota. Filthy houses have done their share. Now sensible people should split the difference and keep both foul and cold air out of their lungs. To encourage those who read this, I will say: The composition of the atmosphere is always the same,* and, like all organs, it is maintained at the same composition, and must remain so until destroyed; and along with its destruction must go all animal life.

It is all nonsense to talk about burning up or breathing out of the atmosphere all the oxygen. If houses are clean, no harm will come to the sick by closing doors and windows to prevent them from chilling their lungs

*This does not mean that the air of proper composition cannot be made the vehicle of filth. Houses, bedding, clothing, and the body must be clean.

and blood by breathing an atmosphere much colder than their bodies.

Harm from breathing cold air does not end with simply causing irritation; the patient's nerve energy is used up in resisting the cold. It takes nerve energy to resist cold; it takes nerve energy to digest food. This being true, should not sick people be kept in a warm atmosphere, and fed on food that will nourish the body at the least expenditure of energy in digestion?

It is a mistake for sick people to live in an atmosphere so cold that wool or other heavy, impervious underwear is thought to be necessary to keep the body warm. Air is a tonic and stimulant to the skin, and, neither last nor least, it is a disinfectant. To keep the surface of the body sweet and clean, air must get to it, and it cannot when the body is swathed in tight-fitting woolen or other underwear. Open-woven cloth is better; no underwear at all is best.

It matters not how clean a housewife may be—if she does not air her closets and clothing, she cannot boast of her cleanliness. Men who ruin their homes with tobacco smoke, rendering them unfit for women and children to live in, certainly pay a lot for their pleasure. I have known of invalid wives who could get well if their homes could be freed from stale tobacco smoke. Invalid wives are expensive.

A part of humanity live in ill-smelling houses and clothing. Many men think they are excused for "stinking like 'ell" because their work is dirty. This is not necessary. Grease, smoke, dust, and iron rust or filings will make the clothes, hands, and face dirty; but I deny that it is necessary for any man to emit an odor that is offensive.

Women who take advantage of dirty work as an excuse for making themselves a nuisance from malodor should be boycotted. It is no disgrace to do work that

makes one's body and clothes dirty; but there never can be any excuse for filth, and the odor that accompanies it. People who are filthy are a menace to society and should be taken care of by the health authorities, in the same way that all decomposition is cared for.

Air and dust, sometimes called dirt, are aseptic and antiseptic. Dust is fought against by housewives, and cities hold it down with the sprinkling carts. In this way one of nature's health-imparting agencies is made inefficient.

Winds and storms are necessary; they are nature's sanitary measures. Wind is necessary for lowlands and low altitudes. Canyons are frequently swept by winds—the reason given being that they act as chimneys for conveying hot air out of the plains: the hot air rises and the cold air goes to the bottom, creating currents. These winds are sanitary; they carry out of the canyons malodors, and antisepticize the accumulated decomposition.

Vegetation grows more luxuriantly, everything being equal, in a windy country than it does in a windless country. Trees grow more rapidly in Kansas because of its winds. Chicago is noted for large, fine-looking girls, and wind. The relationship is obvious.

Walls of wood and stone around private residences in cities are menacing to the health of the neighborhood.

Houses for stock and chickens should be nothing more than wind-breaks—never air-tight pens or houses. All that animals need are wind-breaks; they do not need warm houses, notwithstanding the fact that such protection is often given as a matter of economy—the warmer the animal is kept, the less food is needed. But this is economy at the expense of health. Warm houses and tuberculosis are close friends, and are found among the human animals as well as the brute animals.

The more air we breathe, the better our digestions will be. Warm, close houses are not so menacing to health

as people generally believe. The real health-destroyer in our houses is dirt that is taking on septic change: dirty clothes, kept in closets that cannot be ventilated and are not cleaned; decaying food, and never thoroughly cleaned pantries and ice-chests; old beds that are dressed with nice, white pillows and spreads—veritable whited sepulchers; and then the habit of keeping an ill-smelling cesspool under the diaphragm, from eating beyond the digestive capacity.

Keep the home, in every corner and recess, sweet and clean; keep dirty clothing from accumulating; keep the body and mind clean; then, when cold weather comes, it will not be necessary to keep doors and windows open or to sleep out of doors. Keep clean and comfortable, and avoid shocking the lungs and nervous system by breathing air seventy to eighty degrees colder at night than at midday. When necessary to breathe cold air, do so in action—when walking, exercising, or at work. Do not sit out of doors wrapped up, or sleep out of doors.

In all things it is worth while to take a common-sense view; and in the care of the body, moderation—avoiding fanaticism, which is another name for extremes—is the safer practice, and much more conducive to long life and success.

HEAT

Heat is not food; yet it is one of food's most important auxiliaries.

A temperature of approximately ninety-eight degrees Fahrenheit is necessary to insure digestion and assimilation. A continuous temperature of one degree less than normal will lead to physical destruction sooner than a continuous temperature of one degree above normal.

Just what causes the increased temperature in fevers is an unsolved problem; and it is doubtful whether it ever will be solved. Every case of fever will have to be

settled individually; for, as in all things connected with health and disease, there are no unitary causes. Every effect depends upon multiple causes.

The nervous system presides over organic functioning. When nerve energy is below normal, the functions of secretion and excretion are impaired. As secretions are necessary to digestion and assimilation, these functions are impaired, and, excretions being imperfect, the waste products are retained and act as inhibitors of functioning.

Following this state will be cold hands and feet. People are said to have poor circulation, which, indeed, is true; but poor circulation must have an explanation, for those two words are meaningless in themselves. Poor circulation means enervation; means that nerve energy is low; means that the nerves distributed to the blood-vessels fail to impart tonicity to their muscular and fibrous coats, stimulating normal contraction.

Heart and blood-vessels in health act rhythmically—contract and relax—under the influence of nerve energy; and this causes what we know as circulation of the blood.

Nerve energy is necessary to keep up the blood circulation and the normal temperature of the body indicated by warm feet and hands.

Anything that uses up nerve energy brings on enervation and, as hinted before, impairment of the functions of secretion and excretion. The lungs fail to exchange carbonic-acid gas for oxygen gas. When there is imperfect exchange of gases in the lungs, digestion is impaired; for perfect digestion requires that oxygen be brought in by the lungs.

Nerve energy and heat are generated when the oxygen in the blood of the arteries acts upon the carbon in the veins; and when, from any cause, the supply of oxygen is low, heat is not generated, and cold hands and feet follow. The remedy must be to remove the first cause of enervation. What is it? Excessive eating, drinking,

enjoying, working, or what not. The feeding must be in keeping with digestive limitations, not in keeping with the bodily needs. The chasm that exists between my dietetic system and every other system that I have heard of is too great to be bridged with any possible compromise. I feed my patients in keeping with their digestive capacity, while all others endeavor to force feeding in keeping with apparent systemic needs, without respect or consideration for the patient's ability to digest or assimilate.

The foods that furnish heat are the carbohydrates. Sugar is the most rapid heat-producer, fat next, and starch next.

An oversupply of heat-producing foods, indulged in continually, will end in great enervation and whatever disease the individual has a predisposition to develop.

When sugar is eaten beyond the system's needs, it will not be acted upon. If all were used up and heat generated, life would be put out from hyperpyrexia, or overheating. The amount taken above the body's needs will go out of the body by way of the kidneys or bowels; not, however, without more or less injury to those organs of excretion. It is a mistake to believe that we may indulge ourselves beyond the system's needs, with any food or drink, with impunity. Indeed, the surplus is a tax on energy to get rid of it, and this tax divides the work of nutrition. Ideal nutrition cannot be had when its work is interfered with by the unnecessary work of eliminating a lot of unnecessary material.

It should be borne in mind that the law of correlation of forces must govern in the matter of food and nutrition, the same as in dealing with natural law anywhere in the realm of knowledge and science.

Heat is being consumed when the body is in pain; when overclothed or overworked; and when mentally worried, depressed, or overjoyed.

Fever is not an indication of the generation of surplus heat. Indeed, quite the contrary is true; for the body is not generating so much as when normal. The reason for the excessive temperature is that nerve energy is impaired; elimination of the skin and kidneys is suspended, and, as a result, the excretions are retained. One of the functions of the skin is to radiate heat. If, through food or other poisoning, the nerve energy supplied to the skin is cut off, heat is retained in the body. If the cause is infection from an injury, or pent-up decomposition in the bowels, the source of infection must be got rid of as soon as possible; then the temperature will run down. Physicians in general practice often see an increase of temperature from two or three to five and six degrees Fahrenheit following indigestion caused by overeating, and if the indiscretion is not repeated, the fever may subside in twelve to twenty-four hours.

After childbirth or abortion, if from any cause the uterine discharge becomes pent up, pain and fever will quickly follow. If understood, however, and the womb washed out, and drainage established, pain and increased temperature will be controlled at once, never to return, unless the cause is allowed to return.

Pain prevents the physiological manufacture of heat, and if it did not stop radiation, the patient would probably die from refrigeration—from loss of all bodily heat. Hence fever may be looked upon as one of the most remarkably and uniquely conservative acts in all the world of subconscious self-protection.

Health and long life cannot be looked for by those who are careless and indifferent about keeping their extremities warm. Cold, clammy hands and feet indicate malnutrition, and must be cured by correcting the bad daily habits that build this symptom.

Until the extremities keep warm from restored circulation, following the correcting of the disease-producing

habits, artificial heat must be used to keep the feet warm. Covering on the feet and legs to the knees should be double the weight of that over the body and shoulders; or a jug of hot water may be kept at the foot of the bed to use when necessary. Do not sleep with the feet against the heater. Through the day, if sitting much, an electric pad should be used. Keep the feet warm, and prevent further decline in health.

Do not overclothe in an effort to keep warm. Lightweight, open-woven underwear, with heavy top clothing when going out, is the proper way to meet the cold.

Heat of summer can be easily borne—in fact, enjoyed—if the eating is correct. Cut the heat-producing foods down to the minimum: meat, with all fat trimmed away, not oftener than once a day or three times a week; fruit and salads, with milk and cheese; bread once a day for those who are not overweight. Wear only the lightest-weight, open-woven underwear.

People who persist in overeating must be made very uncomfortable, and they are the people who meet with prostrations and sunstrokes.

Workmen who are subjected to great heat should leave starch, fats, and sugar, or any form of sweets, alone. Drink freely of pure water—positively no alcoholics; for lunch, ice-cream and fruit. The ice-cream is sweet and fat, and evolves heat. Its effects should be watched, and if the heat is harder to endure on days that the ice-cream is used, it would be wise to stop it.

Ices may be used too often, and to the detriment of health. The injurious effects of all classes of foods are so little known by laymen, and even by physicians, that few are willing to believe that their favorite "bonnes bouches" cause the discomfort they experience. I see people daily suffering so greatly that they are driven to seek relief and cure; yet they are unwilling to part with the habit that causes their unhappiness. Indeed, it is almost im-

possible to convince them that ill can come from so simple a pleasure.

Iced drinks should be taken in great moderation. The cold-drink habit is like all other habits—it grows on what it feeds. The more ice used, the stronger the demand. A drink of ice-water taken an hour after a hearty meal often generates an insatiable thirst, which, if satisfied, will positively cause indigestion, and not infrequently start a derangement that may end in typhoid fever or some other acute malady; or a chronic irritation may be started that will end in ulcer or cancer of the stomach.

Extremely cold drinks and extremely hot drinks are equally injurious. The very sick should always be watched, and artificial heat used continually to keep the extremities warm.

Thousands and thousands have died who would have lived if that one little chore of keeping their feet warm had been attended to properly.

If it could be generally known and remembered that the function of heat-making is suspended during sickness, and that the very old, the very young, and those who are greatly run down are liable to freeze up—collapse—in the hottest weather, deaths from this cause might be prevented by seeing to it that they are kept comfortably warm.

Many cholera-infantum cases die every summer—July and August—because those who care for them believe the babies feel the heat as other people do, and no attention is given to keeping them warm. Death in such cases comes from chilling or freezing to death.

Dry heat is more endurable than moist heat. A humid atmosphere is very enervating.

Every summer nearly all cities of this country suffer deaths from heat-strokes.

Sunstroke usually occurs among those who are dissipated. Sensuality perhaps covers the whole class. I do

not believe any suffer from this disease who are not enervated from sensuality.

Those who work in overheated places and are food- or alcohol-poisoned are in line for heat prostrations.

Various disorders may persist after a recovery from heat-stroke; namely, neuralgia, headache, and sometimes strange ideas or notions. These troubles, however, result as much from wrong daily life as from the previous sickness. Indeed, such cases may be cured of these relics of former sickness if the patients will follow a proper style of living.

COLD

Cold climates are said to be more healthful than warm climates. I am not prepared to accept that statement without qualifications. Under correct sanitary control, I believe that warm countries are more conducive to long life than are cold countries; but under neglected and bad dietetic, hygienic, and sanitary conditions, cold countries are better. And, of all countries, those of high altitudes are best. Decomposition is the menace to health in warm countries; the people die of sepsis—blood poisoning—and hepatic derangements; whereas in cold countries health and life are menaced by overstimulation and its consequent enervation.

It is true that heat is enervating, but the bad habit of eating heat-producing foods in hot countries causes hot climates to be more unhealthful than is natural. Investigation will show that there are more people who grow old in warm countries. Cold is hard on old, and on very young, people.

Explorers of the polar regions state that they stood a temperature of from forty to fifty degrees Fahrenheit below zero, without suffering, when there was no wind. It is said that life may be maintained at from seventy to ninety-five degrees Fahrenheit below zero. Authors of

this statement, however, counsel against exaggerating the importance of this fact. On an average, about seven hundred persons perish every year in Russia from cold.

All ages do not stand cold equally well. Adults resist the cold best. The old and young chill easily.

The enervated, or those with weakened nutrition, must keep warm.

Discouragement, overwork, starvation, or any influences that depress the mind as well as the body, render the individual unfit to stand exposure to cold. Any enervating habit removes resistance to cold. Drinking of alcoholics overcomes man's resistance. Brandy-drinking, as practiced in Russia, often causes serious suffering, and a few fall dead on being exposed to extreme cold after indulging.

There still persists a popular obstinacy or ignorant belief that alcoholics, or so-called stimulants, are an advantage to those who are exposed to cold, or subjected to fatiguing labor. The truth is exactly the opposite of this belief; for alcohol, in any form, enervates by removing the normal tonicity. Man in a full state of health has tone—a normal irritability or excitability—that enables him to act and react on his environment. A man in full vigor can control or react or strike back, but the impotent man has no control and cannot react or strike back. The rage of King Lear marks the acme of senile impotency. Indeed, anger means impotency; the greater the lack of self-control, the more impotency is marked.

Alcohol is not a stimulant nor a tonic; it is a drug that deadens sensation. Hence its first, last, and only effect is to paralyze. The reason why drinkers like it is because it deadens sensation. The more enervated the alcoholic habitue, the less responsible he is for his acts.

To send a drunkard or a drug fiend to the electric chair is certainly the acme of social stupidity. We have quit legally killing those whom we know to be insane;

yet we are slow to recognize the drunk or the dope fiends as artificially and temporarily insane.

Fever often produces mental hallucinations, but these states of aberration are not so often due to fever as to drugs. Alcohol and opium have sent many patients through windows to their death. Suicides and homicides are oftener the acts of brains crazed with drugs than the result of viciousness. And society is so ignorantly stupid as to license drug and gin shops, and clothe physicians with authority to build lunatics for our courts to run into the penitentiaries, hang, or electrocute.

Habits are easily formed. It is an easy matter to go from alcohol to morphine. These drugs do not act the same, yet both of them deaden sensation and are habit-forming, and both produce physical and mental impotency. It matters not in what quantities taken, they weaken resistance and render those who use them less and less efficient for their work.

There is nothing except food that gives man strength. And too much food—eating beyond the digestive capacity—will cause weakness. When food is taken beyond digestive capacity, and an habitual intestinal fermentation is established, the individual loses his power to keep warm. Victims of this state may put on the heaviest clothing—and, indeed, they usually wear heavy woolen underwear, often two suits, and the heaviest top clothing—yet the more clothing they put on, the more they may. Still there is no comfort for them; for the more clothing put on the body, beyond just enough to protect from wind and weather, the more such people suffer from cold. Heavy clothes break down resistance, and if the habit of wrong eating and heavy clothing is continued, the refrigeration of death will relieve the unfortunate victims of this health-destroying habit.

When a man is in full health, nothing can add to his strength. Emotional excitement may cause him to use

all the power he has for the moment, but the result is enervation that will require more than the usual amount of rest to restore. The same is true of protection with clothing. The body in health has power to protect itself from the varying temperatures. It can adjust itself to all degrees of heat and cold, and needs no protection except from inclemency. And when these facts are ignored and artificial protection is indulged in, self-protection is lost, which results in disease.

Food and clothing beyond necessity, close houses, artificial heat, stimulants (?) and tonics (?), make a conglomeration of influences that spell d-i-s-e-a-s-e and early death.

The body should be protected from wind and weather, but not from contact with the air. The body must live in the air. Open-woven cotton or linen underwear, or a sleeveless and legless light-weight garment that stands for cleanliness rather than bodily protection, is all that is necessary; then the top clothing may be adjusted to be in keeping with the weather conditions.

This is quite the opposite of what is recommended by modern medical science. But it should be known that modern medical science is a wonderfully wrought-out system of palliation which in every particular "borrows from Peter to pay Paul;" breaks down health to relieve suffering; builds a fatal disease by relieving or palliating an innocent one.

In the matter of prescribing for those who are breaking themselves down—becoming so enervated that the chill of death is sending its messengers of warning—the really up-to-date doctor will prescribe heavy woolen underwear and more good, nourishing food; and, as auxiliaries, stimulants and tonics to quicken the circulation and give strength! Such trifling with health and life is a disgrace to our civilization. Patients applying for advice—for relief from such symptoms—should be educated

into health habits; not turned off with short-lived palliatives that will become allied with the patient's bad habits to hasten his destruction.

Those who find themselves distressed by a weather temperature that does not appear to inconvenience those about them should get busy correcting bad eating, clothing, and housing habits.

Do these people need heat-producing foods? Most of them have broken themselves down by overindulgence in these very same foods. Will they be benefited by eating more of them? This is exactly what modern medical science declares; and the result is more breaking-down, more disease, and at last premature death.

Rest—physiological and physical—whole or partial withdrawal of food, and quiet in bed, with artificial heat and plenty of water, will soon right such patients.

As soon as habitual decomposition in the bowels is overcome, these patients begin to warm up; feet and hands gradually grow warm; the mind and body grow more active; the outlook becomes brighter. Often this change not only restores physical and mental health, but it puts the victim on a solid financial basis. People poisoned with alcohol or drugs, or who are auto-intoxicated, stumble over opportunities every day; they see others succeeding by, perhaps, picking up the opportunities over which they themselves have stumbled.

Those who are cultivating cold feet must not be surprised to find themselves lagging behind in the affairs of life; and they will certainly grow more diseases from day to day.

Death is a coldness that knows no warning; and the unfortunate person who has cultivated cold hands and feet is started toward that final state.

The greater the intensity of cold, the more pronounced its effects on the parts exposed. At three or four degrees below zero, redness is excited; treble the amount

will cause swelling; and six times that amount of cold will result in gangrene.

The first effect of cold is a feeling of fatigue and a desire to sleep. But if sleep be indulged in, there will be no awaking.

LIGHT

Light is necessary for health. Germ life is destroyed by it. Plants do not thrive any better than animals in the absence of light.

Light is a stimulant, and of course can do injury to those who overindulge in it. Those who chase fad cures, and who are not happy until everyone is in the ground too deep for resurrection, will, while taking the sun-bath cure, blister their bodies and torture themselves in every way, that the sun's rays may be used. When this so-called cure ceases to be disagreeable, they will decide that the remedy has lost its effect, and away they go searching for a new cure that will be disagreeable enough to be curative. A cure with them is valued according to the extent of its disagreeableness. The cure idea with such people has not evolved away from exorcism—disease and cure still being a system of demonism. With the profession the demon has dwindled to a microscopic germ.

Clothes keep the light away from the body, and, because of this, man suffers more or less from light starvation. When such subjects are persuaded by a monomaniac healer to expose their delicate bodies to the direct rays of the sun, they will be very uncomfortable.

When people become accustomed to living in Colorado, and have cultivated the sunshine habit, they are not satisfied to make their homes in a country where the sunlight is shut out by clouds and rain. Light builds optimism, while cloudiness or shade causes more or less pessimism.

Light increases the amount of carbonic acid thrown off. It is said that when the body is brought into the light with the eyes shaded, carbonic acid rises twelve per cent; then, if the eyes are bared and the body covered, the carbonic acid rises to fourteen per cent; when eyes and body are exposed simultaneously, this acid rises to thirty-six per cent, exceeding the combined separate exposures by ten per cent. This increase indicates more combustion; and, in fact, there is a slight elevation of temperature. In children it ranges from one-tenth to one-half degree Centigrade.

The sun's rays, either direct or reflected, will cause a skin irritation—erythema—accompanied by an elevation of the epidermis, with serous liquid; that is, the skin blisters and causes great discomfort. When the sun's rays are reflected from water, the action on the skin in one day is very pronounced.

Pellagra is supposed by a few to be caused by the sun's rays; by others, to be caused by consuming spoiled maize—corn. It has not been my privilege to see more than one or two cases of pellagra; but, judging from what writers say about it, it is probably caused by excessive starch-eating; or it may be the combined effect of starch, sweet (molasses), and the sun's rays and hot weather. This disease, and hookworm, should be eradicated by correcting the personal habits of those afflicted with them. It is a mistake to look for a unitary cause for these diseases; for, as with all others, there are many causes, and just what causes them in one individual may not be the cause in another.

Darkened houses are proverbially unwholesome houses. All houses should be built in such a manner as to secure as much light as possible. When light is furnished, air is sure to be, and provision for both these elements makes it almost impossible to overheat.

Blue rays have been used to restore hair; Roentgen, or X-rays, and violet rays are used to treat cancer; and all the rays of the spectrum have been used as remedies for diseases. But these remedies soon fall into disuse because of lack of merit. A few enthusiasts—specialists—on skin diseases, or cancer specialists, have lost their lives from administering the X-ray; others have lost fingers, hands, and arms. I have seen cancer patients fearfully burned by the use of this treatment—and that, too, without corresponding benefit.

The ability of radium to disorganize tissue has caused it to be used and recommended. All these remedies, including the plaster cure made from escharotics, appeal to patients as well as to doctors. Why not? If these remedies can cause the disease to drop out, "root and all," what can possibly do more? Commercialism is just now exploiting radium; but, like all cures based on a false theory of disease, it must fail.

The professional mind seldom thinks farther than to the radical removal of the disease. That the cause may hark back to a faulty nutrition, and that this fault may be caused by one or more of a thousand-and-one enervating causes, is not thought of; or, if it is, no consideration is given it. It is easier to think palliation and work palliatives.

It is doubtful if anyone will develop a cancer who lives in a properly lighted, aired, and heated home, takes reasonable care of his body and mind, and keeps intensely interested in life.

Shut out the light and air from the body with thick, closely woven, close-fitting, and overheating underwear; live in a house in keeping; then have a dietary to correspond, and this will create a habitat in which any disease is liable to spring up and thrive.

A bright light held before the eyes and gazed upon is liable to bring on a state known as artificial slumber or

hypnosis. The name of "Braidism" is given to this phenomenon because a man by the name of Braidy discovered it.

The influence of light and shade on the nervous system must be very great, and it should be better understood. Let us hope that it will be.

I have seen young children thrown into convulsions by allowing a bright light to glare into their faces when they were nervous and feverish.

Care should be exercised with babies to prevent shocking them by allowing strong lights to flash into their eyes.

The moving-picture shows, attended frequently and over a long period of time, will create nervous derangements. No doubt many are being injured in this way. Those with functional, as well as organic, diseases are having their symptoms aggravated by frequent attendance at these shows; but they have not suspected the cause. One or two hours at a picture show will use up as much nerve energy as a whole day at the usual vocation. The combined effect of eye- and ear-strain from overstimulation—the picture and the music—is very strenuous and nerve-exhausting.

SOUND

The nervous system of those who live in large towns and cities is put to great stress. We are fast approaching a time when the noise nuisance will have to be legislated out of existence, the same as other nuisances that have been squelched.

The automobile need not be a nuisance, but it certainly is. The majority of people who drive their machines act as though they had a special commission to make as much noise, split as much air, and kick up as much dust as possible.

Since the automobile and motorcycle have come to stay, there has sprung up a type of people who really believe that their other name is pandemonium. Unless they are kicking up enough noise to wreck the "nerve" of a political lobbyist, they will not be able to "split the ears" of His Majesty, the Prince of Perdition, when they go to him; which they will, for they certainly will be out of place at a "rest" resort. The average chauffeur plays with the cut-off as the average motorman on the street car plays with his bell.

The street car is made up of the quintessence of noise, and the motorman has become so noise-crazed that he clangs his bell—not because he is approaching a crossing; not because he has a slow coach in front of him, but because he is playing an accompaniment to his thoughts. He thinks noise, hence he plays noise.

The car itself is a gamester of noise "par excellence." But health declares it a disgrace to civilization. Not the slightest attention has ever been given to constructing a silent-running car; it is put together so that every part becomes a rival of every other part in creating din. Then, when this roar-monger is manned by a real bell-ringer, hell is certainly turned loose when this peace- and quiet-destroyer is sent over a street every thirty to sixty seconds. There is positively no excuse for inflicting such punishment on humanity. Surprise is expressed at the number of people committing suicide and going insane every year. Unless commercialism is controlled in its selfishness, it will fill the world with mad-houses and penitentiaries.

Fill a street with modern cars, and a lot of automobiles with their cut-offs opened and conks conking, and we certainly have a state of uproar that must cause degeneration of the nervous system of all human beings subjected to it.

Why should we wonder at the increase of insanity and crime, when we add to the din the thousand-and-one other nerve-destroying habits of social and business life?

Every lover of music and art should protest without ceasing against the growing tendency to convert this beautiful world into a hideous nightmare of inharmony. When it is admitted that "silence is more musical than any song," why should the mongers of noise be allowed to rule?

Is there anyone so simple-minded as to need to be told that such a bedlam as exists in every large town and city is subversive of ethics, art, and religion? The beautiful, sonorous, and euphonious sounds are suppressed by the uproar, and the prospective mothers of the coming race are forced into developing a distorted nervous system with which to propagate the species.

We must certainly expect to reap as we sow. Can any but the fool believe that we can sow inharmony and reap harmony—sow pandemonium and reap Utopias?

Disagreeable sounds, smells, sights, tastes, and feelings are so intimately united and blended with commercialism that there is little hope of overcoming them. With this it is the same as with disease-producing beliefs and so-called cures. The present style of curing and immunizing is so much a part of Rockefeller's millions, and other millions, that there is no hope of any considerable reform. The masses move along tied to the yoke of mammon; the poor, sick fools denounce the system that they declare usurps and exploits them; yet in every other way they uphold it with ballot and voice.

The noise system is a cheap-John scheme. It gets up cars as cheaply as possible—which means that they must be noisy. It charges as much as the law will allow. The patrons are shaken and jolted as only a springless and bumperless car or wagon can shake or jolt; and then their finer senses are shocked, through the auditory

nerves, by the noise that almost prevents thinking. All this wears out the patron; it injures him as a citizen; his health is impaired. The health, morality, estheticism, and artistic development of the people of any city may largely be measured by its cleanliness and absence of noise. A public utility that is grossly selfish, and tears the people down to lift itself, is certainly penny-wise and pound-foolish.

When people are nervous, they lack in judgment—they do not make the progress in trades, professions, arts, music, and business that they should. A city made up of noise-crazed people will not make progress in a substantial way. Why? Because noise-crazed people are nervous, selfish, disloyal, and unable to see that to gratify themselves to the detriment of the city's best interests is to cut their own economic throats. This is exactly what every street-car company is doing when its economy lowers the moral, health, and sanity standard of its patrons.

Make a city clean and quiet—or as nearly noiseless as possible. Every utility should be run in the interests of its patrons, on the principle that people well served are happy, healthy, and prosperous, and possess drawing power. They attract other people to their city. Such a city grows; its property advances; and, according to the law of "like attracts like," a prosperous community attracts prosperity.

All physicians who know that sickness is brought on, wittingly or unwittingly, from practicing many bad habits, and from unwholesome environments, by wearing out the nervous system with a lot of unnecessary noise, or by any influence that uses up nerve energy, know that rest is one of the most important elements in a therapeutic regimen—rest of body and mind. This means that the body must not labor; that the mind must not labor; and

that the nerves of special sense—namely, sight, sound, taste, smell, and touch—must rest from labor.

Everything may be done for a broken-down individual except securing quiet—absence from noise; and if this requirement alone is neglected, restoration to health will not take place. Nervous people must secure rest from noise, because nothing is so uncompromisingly destructive to the nervous system as noise.

It is the duty of parents to control children. When several get together, they are inclined to push their fun-making to excess, and from small noises they go to larger and larger, until they become hysterical. If this is permitted day after day, the decidedly nervous temperament will lose more or less power over co-ordination, and this will lead to chorea or St. Vitus' dance.

Light, very restricted eating, and quiet in bed, with visits from children interdicted, is the proper treatment. Such patients must be kept in bed until every sign of muscle-twitching has subsided.

After nervous children recover, a limit must be set to the amount of play indulged in; and excitement of all kinds must be avoided. The diet of such children must be simple: toasted non-yeast bread, butter, and milk for two meals each day; and fruit, cottage cheese, and milk for one meal. Quiet and rest is the principal remedy.

Not many know that music has other qualities besides the power to "soothe the savage breast;" or perhaps I would better say that most people think that only good can come from music. Inharmony disturbs rhythm, and anything that interferes with rhythm strikes at the base of development and interferes with growth—nutrition.

Everything capable of producing an effect may be said to have at least four influences; namely: a good, natural, or wholesome influence; then an excessive, defective, and perverted influence. This is true of music. I know of people who are made very miserable by music—it

might be said that they are badly influenced by it. Then there are strong, healthy people who are driven almost mad by poor or defective musical execution, but who thrive in an atmosphere of harmony.

All people are not attuned to the same key; or it may be possible that it is easier to adjust the nervous system to the different tones than to fall into harmony with varying time.

Sensitive children drive themselves into nervous prostration by the inharmony they produce when compelled to spend long hours in practice.

It may be that only inharmony (noise called music) is to blame for the nervousness I have seen in music-teachers and their pupils; but I know that many suffer much from music, or the noise of practice, or butchered harmony. Of course, there are other influences which must be considered besides the noise of musical instruments. They are food, mental, and physical bad habits that help noise build nervousness and break nervous people down.

School children are overworked. School, music, and social duties wear some of those who are food-poisoned to nerve exhaustion.

ELECTRICITY

Electricity is a mode of motion. It is said to be interchangeable with light, heat, cold, and sound. The power of the waterfall, and mechanical energy generally, may be converted into electricity, and it may be generated by transforming chemical energy also.

Life may be looked upon as a mode of motion; or, if you please, transformed light, heat, and electricity.

Animal life cannot be suspended longer than a few minutes at a time, with any hope of resuming its manifestation. Hence the animal body is provided with power

to transform light, heat, cold, sound, electricity, air, food, and water into life; and it also stores static electricity.

It is almost, if not quite, proved that the energy presiding over, or governing, form is electrical energy. Probably all formative energy is electrical, and possibly the question of sex is a question of a given number of electrons in the atoms comprising embryonic cells.

The ultimate atom, or unit of matter, according to present scientific developments, is conceded to be the electron, which is declared to be a literal atom of negative electricity.

"Like electricities tend to repel one another," and, according to Lord Kelvin, the atom is held together by a core of positive electricity, which is known as an "ion." The problem of atomic architecture is to reconcile the common attraction of the ion for all the electrons with the mutual repulsion of the electrons themselves, so as to produce a stable structure.

By the aid of mathematical theory, checked by actual experience with magnetized needles—to represent electrons—floating freely in water, under the influence of a centrally placed electromagnet, Professor Thompson has been able to unravel the architecture of the atom.

The atoms of the different "elements" vary only in the number and arrangement of their electrons; every electron, wherever observed, being absolutely identical with every other.

Electrons are found to be arranged in concentric rings within the atom, and the presence of a certain number of them in each ring is necessary for holding any given number in place outside of them. The stability of the atom, therefore, depends on the number and arrangement of the electrons it contains.

Such a thing as an absolutely stable atom—a fixed, never-changing atom—is inconceivable.

Professor J. H. Thompson, of Cambridge, explains how atoms of one element, by losing their outer ring of electrons, may be transformed into those of another. This also explains or suggests a law of natural selection among atomic species.

Of the many atoms that have attempted to gain a place for themselves during the countless past eons, there are some eighty that have survived.

This theory is consistent with evolution, and it is to be hoped that it will be proved out in all departments of learning.

However much I should like to extend this line of thought, I realize that I have even now made the beginning of this subject uninteresting to many readers, and I must confine what I have to say on health subjects to the understanding of those without scientific or technical drill. Those who would like to go farther should read the latest books on scientific development.

We have seen, according to the latest accepted theories, that atoms are in reality atomic electric batteries —that each atom is an arrangement of electrons, or negative atoms of electricity with a central core, or ion, of positive electricity.

To prevent perplexity, I will say that, from present knowledge, there are no literal atoms except electrons; all other so-called atoms are compound structures, made up of positive and negative electricity.

Electrical energy is hardly ever used as such, and only after it is transformed into other forms of energy; namely, mechanical, heat, chemical, and light.

Electricity as a remedy for the cure of disease is one of the fads of modern therapeutics. Outside of the benefit derived from suggestion, and the harm caused by so-called therapeutists in their endeavor to cure the sick, there is nothing in the remedy as understood and used today. The market is full of electric belts, garters, amu-

lets, rings, hair-restorers, oxonizers, and all sorts of monstrosities in the shape of instruments and appliances, too numerous to mention. Outside of the suggestion of cure, or what the patient believes will take place after their use, they are not worth a fig a carload.

The profession uses the galvanic and faradic currents; also the X-ray, high-frequency, and static electricity. Very little good comes from any of these. A foreign body and broken bones may be diagnosed by the X-ray, and as a means for diagnosis this form of electricity has come to stay. For the generation of mechanical power, electricity is used. Vibratory instruments for giving mechanical massage are beneficial; but electricity is used only as a generator of the power. X-ray and other light-producing agents are used for the effect of the light—for the stimulation and tonic action. The X-ray can and does kill the tissues, and causes sloughing. Cancer has been, and is yet, treated with electric light. Results are unsatisfactory and doubtful. The radium treatment causes sloughing of tissue. All the new-fangled remedies are not a whit better than the old-fashioned escharotic drugs that have been used in the manufacture of the well-known cancer plasters; some of which are "trained to eat out only the cancerous tissue, root and all"!

Electricity, as electricity, cannot be utilized by the human organism. Only as electrons, found in atomic and cellular life—in organized form—is electricity utilizable. The idea of imparting electrical energy to the human body lacking in energy is one of many common errors.

An enervated subject cannot be forced to receive energy. This is attempted by many physicians when they undertake to force food on those who are run down and enervated from lack of digestive power. Nature will not stand for forcing measures. There is no place for heroic treatment. Every vital process has safeguards

thrown about it by nature, and those guards cannot be ignored or torn down with impunity.

In enervation, organic functioning is impaired. This means that the organism is deficient in power to take from the blood such matters as are necessary for repair or for the performance of its normal functioning. The organism, once reduced to this state, will remain so, unless the necessary rest can be procured. It is not mere building material that is needed; it is not stimulation that is needed; for enervation is the sequel of overstimulation. Rest is the remedy; and, as rest is secured, electrical energy will be supplied by food, air, water, light, and heat. This subtle energy cannot be forced on the organism in the gross manner offered by the bull-in-the-china-shop methods of modern medical therapeutics; an enervated state cannot be cured other than by physiological rest—fasting and physical rest; not exercise, work, stimulation, and starvation. Electric therapeutics amounts to but little more than chemical or mechanical irritation. Locally applied, it may do as much good as a mustard plaster—act as a counter-irritant.

Giving iron to those who are anemic or dysemic, and lime to those who need lime, is on the same order. The rule is that very few are dysemic because their food is deficient in the elements needed. The cause of deficiency is lost selective and appropriative power, and the more of the inorganic elements offered the system by way of drugs, as remedies or food, the more the dysemia develops, until the unfortunate victim is forced from functional to organic derangement, and on to premature death. This is not necessarily a rapid development. Such patients are seeking in vain for cures for from ten to twenty-five years. If they start at from twenty-five to thirty, and require twenty-five years to wear out, trying palliatives and false cures, they certainly die early enough.

Besides, efficiency has been wasted in physical and mental impairment caused by disease and so-called cures.

If present scientific developments augur well, it will not be long before we shall know positively that electricity, or electrical energy, is the alpha and omega of all things; and, from a health standpoint, a knowledge of how to conserve, utilize, and appropriate this energy will be the "summum bonum" of a successful therapeutics.

The most we know today of how to supply electric energy is to have the enervated—the impotent—rest. In a state of rest this energy appears capable of accumulating; and we know from daily observation that unrest, activity, and overstimulation cause its dissipation.

The farmer knows that rest restores energy and potency to land that has lost its fertility from use. But he does not know that ground granite or feldspar will restore its productiveness, and that in all probability the fertilizer "par excellence" contained in it is the static electricity that has entered into its formation and is liberated when the rock is made into bread.

I have proved out on electricity as a remedy the same as I proved out on the regular materia medica.

I once used the galvanic current in treating fibroid tumors, and believed that the electricity caused absorption. But I have learned, after years of experience, that the only really effective remedy is the correcting of daily habits which break down resistance; after which, physiological equilibrium is lost, and this allows cell-growth to be perverted.

Lost resistance means lack of energy—lack of life force; and, according to the few hints thrown out regarding the electric architecture of the atoms, when enervation is pronounced, there is probably a dissipation of electricity—electrons—and a consequent change in the structure of the atoms that build the cells. As a result, we see tumors and growths of different kinds, and hard-

ening of tissue—arteriosclerosis—stone formation, etc. If this is a true explanation of the cause, the logical remedy would be to furnish the system with electricity; but to turn the battery and flood the body with a great current of electricity would be about as appropriate or logical as to tie a rock around the neck of a thirsty man and throw him into a river to relieve his need of water.

Nature never supplies wants in such a blustering way. The rock is built by feeding it with an impalpable supply. If this is true of rock-building, what must be the subtleness of tissue-growth, and how slight the change required to convert normal tissue into abnormal—healthy flesh into cancerous!

Instead of flooding the surface of the body with a current of electricity—which the use of a battery means—the therapeutist must know how to cause the body to secure its electricity from the air, light, and food.

The average work done by physicians and surgeons in their application of remedies is what one would expect of a house-painter put to work to paint a portrait. There is a lack of delicacy. It is true that there are many skilful and delicate operations performed; there are also skilled matadors and butchers who perform skilled operations. We should not hold the idea that expert skill in operating is sufficient excuse for operating. I say, with no fear of successful contradiction, that the majority of operations performed have no excuse for being done except that they are done skilfully. In treating patients with electricity, they must be placed in a state favorable to receiving the inflow as offered by nature. All that is necessary, usually, is to learn in what way this energy is being dissipated; then stop the waste. Indeed, this is the simple formula for supplying the human body with all its needs.

METABOLISM

Metabolism is necessary if food is to be utilized by our bodies. Perhaps it will be well to define this process, so that the lay reader may read with better understanding.

In regard to metabolism, Liebig, in 1842, made public his theory that it was not carbon and hydrogen that burned in the body, but proteid, carbohydrates, and fats. His original idea was that, while oxygen caused the combustion of the fat and carbohydrates, the breaking-down of proteid was caused by muscular work.

It has been shown, however, that oxygen does not cause the decomposition of food in the body, but that this change proceeds from unknown causes, and the products involved unite with oxygen. These chemical changes of material under the influence of living cells are known as "metabolism." The process involves two factors: catabolism, or the reduction of higher chemical compounds into lower; and anabolism, or the construction of higher substances from lower ones.

Voit declares that—

> The unknown causes of metabolism are found in the cells of the organism. The mass of these cells and their power to decompose materials determine the metabolism. It is absolutely proved that proteid fed to the cells is the easiest of all the food-stuffs to be destroyed, next carbohydrates, and lastly fat. The metabolism continues in the cells until their power to metabolize is exhausted. All kinds of influences may act upon the cells to modify their ability to metabolize, some increasing it or others decreasing it. To the former category belong muscular work, cold (in warm-blooded animals), abundant food, and warming the cells; to the latter, cooling the cells, certain poisons, etc.
>
> In speaking of the power of the cells to metabolize, I have not meant thereby, as may be seen from all my writings, that the cells must always use energy in order to metabolize, but rather I have understood thereby the sum of the unknown causes of the metabolic ability of the cells—as one speaks of the fermentative "power" of yeast cells.

The metabolism of the different food-stuffs varies with the quality and quantity of the food. Proteid alone may burn, or little proteid and much carbohydrates and fat. I have determined the amount of the metabolism of the various foodstuffs under the most varied conditions. All the functions of metabolism are derived from the processes in the cells. In a given condition of the cells, available proteid may be used exclusively, if enough be furnished them. If the power of the cells to metabolize is not exhausted by the proteid furnished, then carbohydrates and fats are destroyed up to the limit of the ability of the cells to do so.

From this use of materials arise physical results, such as work, heat, and electricity, which we can express in heat units. This is the power derived from metabolism.

It is possible to approach the subject in the reverse order; that is, to study the energy production ("Kraftwechsel") and to draw conclusions regarding the metabolism ("Stoffwechsel"). It is perfectly possible to say that the requirement of energy in the body, or the production of the heat necessary to cover heat loss, or for energy to do work, are controlling factors over the metabolism, since on cooling the body, or on working, correspondingly more matter is destroyed. But one must not conclude that the loss of body heat or muscular work is the immediate cause of this increased metabolism. The causes lie in the peculiar conditions of the organism, and muscle work and loss of heat are merely factors acting favorably upon those causes, raising the power of the cells to metabolize. In virtue of this, more is destroyed, and secondarily the power to work and increased heat production are afforded.

The requirement for energy cannot possibly be the cause of metabolism, any more than the requirement for gold will put it in one's pocket. Hence the production of energy has a very definite upper limit, which is afforded by the ability of the cells to metabolize. If the cells will metabolize no more, then further increase of work ceases even in the presence of direst necessity; and this is also the case with the heat production, even though it were very necessary, and we were likely to freeze.

I therefore maintain my "older" point of view, that of pure metabolism, in order to explain the phenomena of nutrition. I am convinced that it is the right way, and that the clearest and most unifying development will be possible as one investigates what substances are destroyed under different

circumstances, such as work and loss of heat, and how much of the different materials must be fed to maintain the body in condition.

Whether we secure nourishment for our bodies from our food, or not, depends upon metabolism; and the chemical process known as metabolism depends upon the integrity of the cells of the body. It stands to reason that cell-life must be normal, and the food consumed of a proper quality and quantity, if we would hope to maintain health.

To maintain cell-life up to the normal, we are told by Voit that muscular work, cold, warmth, and abundant food increase the power of the cells to metabolize; whereas cooling the cells and using certain poisons will decrease this power.

My readers understand the importance of nerve energy in keeping up the health standard. I have had much to say about enervation or lost energy, and just how this lost resistance is brought about. Indeed, I have referred so frequently to the causes of enervation that it is a wonder if I have not wearied my readers. But the subject, as I present it, is so new that the thought must become ingrained by repetition.

THE GERM THEORY

The cause of disease, as understood and generally taught, is extraneous—from without. At first it was believed to be a punishment sent from God; later, God was largely left out, except by evangelists; then nature was accused of warring against man, and man had been compelled to subdue nature to make it possible for him to live on earth. Along with these beliefs has gone a hazy idea that the organs of the body could go wrong; the cause being an organic rebellion, the organs being conceded to be isonomic—to have independent power. This idea has gone so far that surgeons believe that the

larger part of the organs of the body may be removed with impunity. The idea that the body is made up of a community of interdependent organs—every one being necessary to every other one—is very loosely understood, if understood at all; and certainly not acted upon, nor considered, in diagnosing and treating disease.

The latest cause of disease, to be generally recognized as a universal cause, is the germ. To what extent the germ theory has taken hold of the profession and people I need not say, for it is generally accepted.

The omnipresence of germs I admit, as I do the omnipresence of air. Reasoning from analogy, I must say that one is as necessary as the other; for we observe that, with the extinction of either, life goes out.

If air becomes so contaminated with noxious material that disease and death result, we are not justified in declaring that air is the cause of disease.

If the sun's rays are forced to strike the body in a manner that causes blistering and, when continued, even death, we are not logical nor truthful when we say that the sunshine is disease- and death-producing.

Because many people are made sick, and even killed, from eating too much, a diet enthusiast is not justified in declaring that food is a poison and, as such, is the cause of disease.

Germs are one of many factors necessary to health and life, and when the conditions of their existence are changed so that they are multiplied beyond physiological requirements, then it is, and not till then, that the physiological becomes pathological—that disease and death are forced—because of an unbalancing of the factors necessary for normal existence.

The germ theory as worked out, and nicknamed "modern medical science," is one of the most gigantic fallacies ever perpetrated by delusional insanity. How soon the truth will rise and break the bonds of this colos-

sal delusion is beyond the prophetic power of ordinary seers, but in the meantime those who are not caught in the meshes of this logically constructed delusion should endeavor to understand man and the laws of his being, so as to formulate rules of conduct which, if he respects, will cause him to live immune to disease, the science of bacteriology to the contrary notwithstanding.

The believers in the germ theory ignore all other causes of disease.

The idea that disease may be due to intrinsic causes is believed to a very limited extent. Auto-intoxication is accepted as a possible disease, but it is very limited as a cause, if, indeed, autotoxemia is not really believed to be primarily brought on from extraneous causes.

Enervation as a cause of disease—as a universal cause of all disease—is not generally known, and in the case of the few who know, I hold, it has not become a part of them; for few, if any, have lived the knowledge; hence it is not yet a part of them.

Before enervation can be accepted as a general cause of disease; before the mind will be ready to accept the fact that disease is simply perverted health—health acting under an influence that prevents an ideal manifestation—the belief in a disease entity, the belief that health is an entity that is opposed by disease, which is also an entity, must be banished as a mental concept. This brings us, then, to the seat of organic life—which is the cell—in order to learn, if possible, what influences normal cell development.

We know that the body is made up of a community of organs, and that they are bound together by mutual influences which cannot be interrupted without causing a change in their behavior—which change we call disease. The cause for such derangements may be injury or poison. The organs are made up of a community of cells, and, if we have organic health, the cells that combine to make

up the organs must be normal in construction and function.

As we have been told by Mr. Voit, metabolism takes place in the cell; that is, after food has been digested and absorbed, it is disposed of by the cells. In the cell, which is the machine-shop of the body, food is finally disposed of. The cell has the power of reproducing itself, and in this process of reproduction the mysterious change known as metabolism takes place—food is changed into new cells, and the waste and worn-out materials are carried out of the body, principally through the kidneys and bowels.

As Voit declares, the process of metabolism is not known; but we do know that energy is necessary, and reason declares that there must be a chemical change; not the chemical change that may be likened to the digestive act which takes place in the stomach and bowels, in preparing food for absorption, but, of course, a more refined process, and one in which the subtle forces of nature play a part. It is here that the electrons and the elemental substance of mind are incorporated into tissue; here is where the word becomes flesh.

Voit says:

> I have not meant . . . that the cells must always use energy in order to metabolize, but rather . . . the sum of the unknown causes.

Unquestionably mind enters into the process of nutrition and is an important physical energy. Indeed, mind presides over nutrition and is the idealizing force.

In advising the sick, mental poise must be secured in all cases, to insure permanent restoration; and in perhaps eighty per cent of all sick people mental composure is the only remedy needed to restore health. To maintain a normal state of the body and attain to long life, the mind must be poised, and knowledge of the laws of

health and life must be understood and respected; otherwise the physical will degenerate in spite of mental poise.

Mental and physical poise means the building of a habit of composure—knowing how to rest in work. Another name is physiological rest.

The heart does not need to stop functioning to become rested, and it will not tire unless it is forced to work beyond its normal capacity—stimulated to do so by coffee, tea, alcoholics, tobacco, overstimulating foods; poisons circulating in the blood, such as toxins absorbed from the bowels, caused by decomposition of food in the stomach and bowels; constipation; inactive kidneys and lungs; overworked emotions; excessive venery, or any influence that increases heart action; and, neither last nor least, drugs given to control the heart and to stop the numerous pains to which flesh is heir.

The same rule holds good regarding the blood-vessels; they are influenced unfavorably by everything that affects the heart or nervous system.

A mind kept in any sort of a strain overworks the nervous system, and depression follows. Depression is enervation.

Nature rests in work, and, when not forced—stimulated—or depressed, remains normal. Worry is perpetual work.

It is very nearly impossible to overwork when the mind is poised; but work and worry soon destroy us. Work without interest is work without joy, and soon brings old age. Work performed without interest is never progressive; the creative energies are never brought out; and the mind never enjoys the pleasure of expansion. People working in this way are waiting for "something to turn up," not knowing that something is turning up—opportunities are presenting—all the time, which, because their wits are not sharpened by attention, are allowed to pass unnoticed.

The depression—enervation—coming from grumbling and dissatisfaction in the course of time brings on disease. Why? Because the cells are not furnished the subtle energies—electricity and mind—in such a state as to be utilized. Perhaps I would better say that, on account of overstimulation, the cells do not attract "the unknown causes," or the cells lose their power of dynamization; hence they fail to reproduce vitalized cells. People in this state, we say, have low vitality—they fail to get any nourishment out of their food.

The worry habit leads many into this state. The carrying of a great sorrow, secret fears, jealousy, disappointed love, envy, bad temper, chronic grouch—all these, when suffered long enough, lower the nerve energy, and nutrition fails; following which, cell functioning is impaired, and the body fails to renew itself ideally. Then it is that old-age diseases begin to develop: hardened tissues, arteriosclerosis, stone in the gall-bladder and kidney, and all kinds of tumors, including cancer.

The unknown causes of metabolism may elude the test-tube and laboratory experimentalist; and the observant physician may never be able to bottle them. But when he teaches those with impaired nutrition how to poise; how to rest the mind, and to change sorrow to happiness; greed to generosity; the envious, jealous, and suspicious into trusting and well-disposed persons; irritability into conciliation; in a few words, change all nerve-destroying influences into nerve-developing and nerve-conserving influences, he may see the cells take on new life and energy, and show by the results of their work that they are again charged with "unknown causes of metabolism;" and he may wisely decide that the unknown causes are the subtle elements—the dynamic energy—set free in food by the power of optimism—faith, hope, and charity.

The subtle energies are over and above the palpable and tangible, and belong to, or are, the creative energy.

Proteid foods are tissue-builders. Proteid is found in all foods except pure fat, starch, and sugar. Meat averages 16 per cent; eggs, about 13; cereals, 8.3; wheat, 9.3; whole-wheat bread, 7.5; white bread, 8.1; cakes, cookies, gingerbread, doughnuts, etc., about 5; pies and puddings, about 3; fresh fruits, from 0.3 to 1.4; canned fruits, less than 1; dried fruits, from 0.4 to 3.4; fresh vegetables, from 0.4 to 2.3; rhubarb, 0.14; green corn, 3.1; dry beans, 15.8; dried peas, 17.3. Nuts range from the cocoanut, which has 3.6 per cent proteid, to the peanut, which contains 25.8 per cent, and the butternut, which contains 23.7 per cent proteid.

According to Graham Lusk, in "The Fundamental Basis of Nutrition":

> An average man weighing 156 pounds contains about thirty pounds of protein, or 20 per cent of the live weight. If the man starves, he will lose 5 parts per thousand of his protein store daily. If he be given fat and carbohydrates (starch and sugar) in large quantities, the daily loss of body protein may be reduced to 2.5 parts per thousand. This loss of body protein represents the irreducible minimum of wear and tear on the constituent parts of the machinery of the cells. Murlin has shown that this destruction cannot be prevented by giving gelatin with fat and carbohydrates. Gelatin contains many of the structural units of meat proteid, but in very different relative amounts, and it contains no tyrosin, cystin, or tryptophan. It, therefore, has not the chemical units necessary to repair the worn-out parts of the cell machinery. Murlin found, however, that if this quantity of proteid which constitutes the irreducible minimum of wear and tear on the cells was added in the form of beef heart to the gelatin diet, the waste of body stopped at once. He found that the wheat proteids of cracker meal were far less efficient in protecting the body from proteid loss than were the proteids contained in beef heart.

This indicates the need of replenishing the proteid store of the body.

In this connection I wish to record my experience with soups made from meat-stock. So far as I have been able to observe, this preparation of soup brings on deranged digestion, and causes languor, a heavy, tired feeling, and symptoms of rheumatism. I have never arrived at any satisfactory reason why soup made in this way should derange health. I have thought that it may be due to some change, on the order of decomposition, that may take place in the stock, which the heat fails to correct; or perhaps the evil effect may be due to a chemical change. The stock does not represent meat; for it is more largely gelatin, and gelatin is lacking in several elements—namely, tyrosin, cystin, and tryptophan; otherwise it would be a valuable proteid food. It may be that Murlin's explanation may be applied to my experience with meat-stock; namely, that the stock makes a soup lacking in a few elements necessary for a true proteid food; and, in supplanting meat with stock soup, and eating freely of white bread and other starches, the body's proteid is used up, and nerve weakness, and the mental depression consequent, exert an unusually detrimental influence, causing discomfort and disease.

BAD COOKING

Much harm comes from bad cooking. Chronic diseases are built by eating vegetables from which food salts have been decanted. When the chemistry of food is materially changed by cooking, we should not be surprised if our bodies deteriorate very materially under the influence of such eating. Too much mixing and combining has a tendency to alter the chemistry. The simpler the food, the easier of digestion; the more foods are compounded in their preparation, the more surely will they bring about ill-health. Meats cooked with starch and fat—meat pies—are much harder of digestion than meat cooked in the simplest manner—properly stewed,

roasted, or broiled. It is better not to eat bread with meat in the same meal; but, if the habit cannot be given up, the meat should be stewed in just enough water to prevent burning, so that, when served, it will be tender and carry a rich, brown meat juice. The latter should not be ruined by adding flour to it. Flour gravy, which is such a delight to all children, is a digestion-destroyer. If meat is not stewed as directed, it may be roasted either in a roaster or in a jacket; or broiling is a delicious way of preparing steaks, chops, fish, or young chickens. Properly stewed meats are easier of digestion than when cooked in any other way. Steaming and cooking in fireless cookers is all right for those who are prepared for cooking in this way, and especially for those who do not know how to cook and are not interested. The housewife, however, who cooks with love—because she loves to cook, because she takes a delight in cooking and preparing food well for those she loves—will always impart a flavor that indifferent cooks—those who cook for pay, or cook because they have to, but who are not interested, and indeed dislike the work—know nothing about, so far as being able to develop it is concerned. In cooking, as in all other affairs of life, there must be a love for the work, or, like unwelcome children, the products will be "cursed before birth."

A mother who cannot prepare her children's food in love need not be surprised if her children do not thrive. Such mothers and wives should not be surprised if their families are outwitted and outdistanced in the race of life by others not any better, if as well, mentally and physically equipped.

Many men are kept down to a low earning power because their stomachs are taxed by indigestible foods to

such an extent that the brain is stupefied. Such people are impatiently waiting for their ship to come in. As well wait for potatoes to dig themselves, or for a gold mine to open and present itself to Mr. Micawber. Accidents do sometimes occur, and Mr. Looking-for-Something-to-Turn-Up is made comfortable and put on Easy Street without an effort on his part. But these accidents are so rare that it is better for those who would get on, be comfortable, and happy, to get busy building a ship, that they may have one to come in. Besides, ships that are not built out of intelligent endeavor are likely to strike icebergs and go to the bottom on the first voyage.

The ships that stem the tide and eventually make a safe landing are those which are built well. And, to build a ship of fortune, one must have a clear mind—not one blurred with an inactive or engorged liver, brought on by eating improperly cooked food, or improperly combined food, or by stuffing too much food into the stomach three or more times a day.

Business and income will not increase without thought. The animal does not improve its condition, because it cannot think. Men who do not improve their condition do not think, and are too fond of rest. The mind must be improved. Those who are too indolent to read, study, and think of how to improve the business they are in, or how to excel, need not be surprised that they get no advances. It is always the hustler who succeeds—the fellow who is not afraid of work; who works at home; who thinks out improved methods, shorter roads to accomplish given work; the fellow who is not willing to remain mediocre.

Ambition may fail, hard work may fail, if commonsense is not used in planning as well as rustling. Knowl-

edge of health laws is one of the first necessities in starting life. One must know how to live well—how to live to attain the greatest efficiency. Indigestion, headache, constipation, overstimulation, giving-way to appetite and passion, are a few handicaps that lower efficiency and make business failures. Overeating of proteid foods, or improper preparation and combination of these foods, work havoc with health and efficiency.

CHAPTER I

FOOD IN ITS RELATIONSHIP TO THE BODY

AN UNDERSTANDING of the relationship of food to the body is the most important knowledge for man to attain; for it has all to do with health, and without health nothing can be accomplished.

Inasmuch as every physical act consumes energy, and all energy is derived from food, the maintenance of a reserve of force—resistance—is a desideratum that should not be ignored by anyone who wishes to attain full efficiency and live to the allotted age for man, which, according to the best scientific data, ranges from one hundred to one hundred and twenty years.

FOOD

Food varies much in composition, and a knowledge of the approximate composition is essential; for in no other way can man supply himself with the needs of his body. The function of digestion is the bringing of food into such a state of solution in the stomach that it may be absorbed and enter the blood prepared for assimilation; which means that the different tissues of the body take from the blood the elements required.

The study of food is a complex one, and the scientific investigations along this line have been limited to a very short or recent past—so recent, in fact, that the average man knows little about food. Indeed, it is a very common thing to hear physicians of good repute declare that food has nothing to do with sickness, and that people who are sick may eat whatever agrees with them. Those who are

now making such remarks will have reason to blush for shame in a very few years; for the demand on the part of the people for physicians who can tell them what to eat, when to eat, when not to eat, and how to combine to greatest advantage, is growing so strenuous that physicians must answer the call.

The body is composed of chemical elements, and these elements are found in the food on which man subsists. There are fifteen to twenty elements contained in the body, the principal ones being oxygen, hydrogen, carbon, nitrogen, calcium, phosphorus, and sulphur. In foods, these elements are most conveniently grouped under the headings of (1) Water; (2) Salts; (3) Protein; (4) Carbohydrates; and (5) Fat.

Water.—Water enters into the composition of every tissue, and forms about sixty per cent of the weight of the body of a full-grown man. It is obvious that this percentage must vary in different individuals. Those who carry a very great deal of weight have much more than sixty per cent of water, and those who are very thin will carry less than sixty per cent. Water should be recognized as one of the most important foods, inasmuch as man cannot live without it and all other foods to exceed seven days. He can live without all other foods forty days when given water, but he cannot live beyond seventeen days when given food and at the same time deprived of water or fluid.

Salts.—The earthy salts consist principally of calcium, potassium, sodium, magnesium, and iron. There are others that do not occupy so great a position, which will be brought out more fully in taking up the different foods and their elements. The mineral salts are very necessary to life and health. Without them, tissue proliferation cannot take place. Indeed, the salts may be likened to the framework of the house, and they are fully as important. In our daily foods the salts are derived from

vegetables and fruit. The most important are taken into the system when we eat raw fruit and raw vegetables.

Protein.—Protein or nitrogen is very important, and is found in foods of both the animal and the vegetable kingdoms. Those most familiar to laymen are meats, eggs, and the gluten of grain.

Protein foods are of the greatest importance in keeping up the animal body. They build new tissue and repair the old and worn-out parts. They are oxidized in the body and are important as a source of energy. Proteins are sometimes converted into fat and stored in the body for future use. They form the tissue-building part of the diet. When not sufficiently supplied, the body wastes. The rule is that too much protein is consumed by the people, rather than too little, and its overconsumption causes many of the blood diseases from which man suffers. Overconsumption of this kind of food is the basis of tuberculosis, Bright's disease, and catarrhs of all kinds. Infants are overfed on milk and become protein-poisoned. When sugar is added to the diet beyond a very restricted amount, it joins the protein and causes putrefaction in the intestines. This favors the development of contagious diseases.

Graham Lusk says that twenty per cent, or thirty pounds, of the live weight of the human body is proteid, and that, when fasting, a loss of five parts to the thousand takes place; that is, in a thirty days' fast only five pounds would be lost; or, if starch and sugar be given, the loss would not be more than one-half that amount. Murlin found that by giving an amount of proteid equal to the irreducible minimum of wear and tear on the cells, the waste of body would stop at once; the amount required being one and one-half ounces each day.

It has not been my experience that such a loss can be checked by giving so small an amount of vegetable pro-

teid. The reason, perhaps, is that the vegetable proteid is not all digested and assimilated.

Meat proteid can be handled much more easily by the digestive organs than vegetable proteid. This truth is not so readily proved in people of full health as in the sick, or those who have imperfect digestion.

Graham Lusk says: "Wheat proteids are less efficient in protecting the body from proteid loss than are the proteids contained in beef heart." This statement may be extended to take in all animal foods.

If two ounces, less a fraction, of lean beef per day can stop proteid waste in a fasting subject, why should more be given? There is no need of giving more, unless it is necessary to increase the weight, and for this purpose enough proteid can be found in other foods to make up the difference required.

To enable the reader to calculate the caloric or heat value of any and all foods, I submit, from Rubner's investigations, the following table:

One gram protein =4.1 calories
One gram of fat =9.3 calories
One gram of carbohydrates =4.1 calories

From Hutchinson I quote the following:

Quantity of protein consumed daily is	100 grams ×4.1 = 410	(3.5 −ounces)
Quantity of carbohydrates consumed daily is	500 grams ×4.1 = 2050	(17 +ounces)
Quantity of fat consumed daily is	50 grams ×9.3 = 465	(3.5 −ounces)
	2925	(24 +ounces)

Chittenden says that sixty grams, 2 + ounces, of proteid is enough.

It is doubtful if authorities will agree on this subject; for they must always be contending with an unknown and unknowable quantity; namely: How much digestive and assimilative power has the patient? Those who are not patients—those who are not sick—will continue to eat as they please.

The reader should see at a glance how easy it is to overeat, according to Chittenden; for most people who eat meat will eat twice to four times that amount in twenty-four hours, and, in addition, bread (graham and whole-wheat), eggs, navy or butter beans, besides other foods that carry a small percentage of protein.

To undertake to feed all people according to rules and tables will end in failure. The professional stickler for scientific rules with which to direct the feeding of the sick or well will find himself miring and floundering in the quicksands of speculation, in spite of carrying out to the letter the profoundest up-to-date, scientific dietetic principles. Why? Because there is no scientific way of finding out how much digestive and assimilative power is possessed by a given individual. I have said many times in my writings, and have no reason to reverse or change my opinion, that proteid foods "per se" are not indispensable to body-building; for they, like all foods taken into the body, must be digested—undergo disintegration—and be absorbed into the blood, there to meet with the higher process of digestion and become fitted for body-building. The elements needed for all tissue-building are selected from digested food, not from protein, or a compound of elements. Digestion is a process of analysis—a separating of elements—so that in the workshop—the cell—a new synthesis can take place.

Proteid foods are highly synthesized. And it is a law of chemistry that the more complex and compounded a given substance, the more unstable it becomes.

When more proteid is ingested than is necessary to supply the waste of tissue, the surplus is used in furnishing heat to the body. An oversupply of heat is detrimental to health. When food heat is aided by hot weather and overheating clothes, look out for disease.

Proteins are divided into albuminoids, gelatinoids, and extractives.

Albuminoid.—Albuminoid includes such substances as white of egg, the lean part of meat, casein of milk, and the gluten of flour.

Animal albuminoid is more unstable than vegetable albuminoid.

To enable my readers to appreciate fully what pure albumin is, I have secured the consent of Professor John Uri Lloyd to quote as freely as I like from two articles which he prepared and had published in the "Eclectic Medical Journal" of Cincinnati, Ohio:

> Albumin is a proteid found in all animals and in most vegetables. There are many forms of albumin, the most familiar of the natural albumins being the white of egg, which consists largely of albumin, and is, perhaps, the most universal product used as food by animals. Albumin has a very complicated molecular structure, its formula, when purified and crystallized, being (Foster), $C_{720}H_{1534}N_{218}S_5O_{248}$. This proteid, albumin, let us repeat, is one of the most nourishing of foods, and may often be taken into the stomachs of invalids where other forms of food are inadmissible.
>
> A cubic centimeter (pipette) is about the capacity of a small thimble. A cubic centimeter of a five per cent solution of crystallized egg albumin will carry less than one grain of albumin. One-twentieth of a millionth part of that amount of albumin would be a speck so small that the normal eye could not detect it. But this infinitesimal amount, twice injected into the veins of a guinea-pig (Eccles), a period of time intervening between the injections, produces distinct physiological symptoms.
>
> One fifty-thousandth of a cubic centimeter of this five per cent solution of albumin carries about one-millionth of a gram of albumin. Divide one grain of egg-white into 66,600 parts, and you have about that quantity. And yet (Eccles) the second injection of that amount (an interval between the injections) into the veins of a guinea-pig produces death.
>
> The same amount of strychnine, under like conditions, produces no ill effect! The same is true of prussic acid! Old-time poisons of the most virulent kind become harmless as contrasted with minute amounts of albumin repeated after a period of rest.

Let us review this mighty problem, in the words of Dr. Eccles, as presented in the "Medical Record," August 12, 1911:

"A startling revelation is 'that one-millionth of a cubic centimeter of a five per cent solution' of a three times crystallized egg-albumin, 'or one-twentieth of a millionth of a gram of protein, will sensitize a guinea-pig enough so that distinct and typical symptoms are produced after a second injection of the same material, while one fifty-thousandth of a cubic centimeter of solution containing but one-millionth of a gram of protein sensitizes fatally.' Try to grasp the full significance of these words. Think of a grain of egg-white being divided into over 66,600 equal parts, and one of these parts proving as deadly to a guinea-pig as a bullet through its heart. Strychnine and prussic acid are deadly, but they are almost harmless when compared with hen's egg protein, administered intravenously after sensitization. We consume this deadly material with impunity as a constant article of diet. Friedberger tells us that "if into a guinea-pig a tenth of a milligram of the serum proteid of a sheep is injected, and if at a later period, as early as after ten days, five milligrams of the same proteid are injected into a vein, the animal goes into convulsions, has asphyxia and dies!' "

Again, let us quote from Dr. Eccles:

"As a repeatedly recrystallized egg-albumin, giving every evidence of chemical purity, is capable of causing sensitization in doses of one twenty-millionth of a gram, and of killing sensitized pigs in doses of one-twentieth of a milligram, it is evident that if either of these effects were due to something other than the egg-albumin itself, this contaminating substance must have a potency beyond the bounds of imagination."

Comes now the summing-up of these facts; for here the old axiom that "one man's food becomes another man's poison" seems more than imagination. A hearty meal of albumin is merely a wholesome food, for man or beast. And yet a touch of pure albumin in the veins kills the guinea-pig as assuredly as would an electric shock. Again, the admirable summing-up of Dr. Eccles admits of no improvement.

"That such potency for evil should exist in them at all is remarkable, and it 'cannot but excite our wonder that the chemistry of the body should be so delicately balanced that the introduction of 1-10,000,000 part of a gram of foreign protein

should be able to so profoundly influence it as to result in serious symptoms when injected a second time.' Most of this wonder centers in the fact that it is protein—vitally essential food—that is so superlatively destructive."

Let us now go into further outreaches. Albumin (protein) is not confined to eggs. Plant textures contain it. In food grains it is abundant. Nuts, corn, peas, beans, and the other standard foods bear it prolifically. And the albumins of these, too, are poisons, when properly injected into the veins. Dr. Eccles expresses it admirably as follows:

"Nor is this poisonousness confined to animal proteins. The fact has been established that plant proteins have the same fatal power. Wells and Osborne have found that the sensitizing and intoxicating power of our common food grains is as great as those of the animal products. They tell us that 'the sensitizing power of edestin (from hemp seed) is not noticeably less than that of crystallized egg-albumin, as one ten-thousandth of a milligram (0.0000001 gm.), the smallest sensitizing dose tried, rendered the guinea-pig sensitive to edestin.' "

Our present article but touches the subject that now, bursting upon our vision, appalls the theorist who hopes to become "authority." It staggers him who knows enough to comprehend that, in his feebleness of mind, man can hope to comprehend but little.

If pure albumin has such a detrimental effect on gaining entrance to the blood before it has been subjected to the modifying influence of digestion, the importance of digestion should be apparent to everyone. And this knowledge should make all people who are capable of reasoning wholesomely cautious about stuffing food beyond their digestive capacity. It should always be borne in mind that nature (our body) must labor to rid itself of the surplus of overeating; and all the time that digestion and elimination are being pushed beyond full capacity there is danger of absorption of either pure albumin, or albumin that has been forced to take on pathological fermentation.

Surgeons are fully alert to the necessity of preventing the absorption of septic material through wounds. And

physicians generally know that all decomposition in the animal body is a modified albumin, and they know what a rank poison this product is. Yet, because of the blinding influence of superstition, they advocate inoculation with vaccines which are "purified" decomposed albumin.

After reading Professor Lloyd's article regarding the toxic influence of pure albumin, with how much face can believers in inoculation recommend "pure" vaccine?

The truth about vaccines and serums is that they are safest and purest when they have been refined until they are inert. It is my belief that all the benefit supposed to be derived from vaccination and inoculation comes from the suggestion, and from the innocuousness of the vaccines.

When there is any potency left in these supposed remedies, we have fatal results—calamities such as are occasionally reported in the daily press. As has been stated before, the only reason why we do not have more fatalities from vaccine against small-pox is because the poison fails to get deep enough to gain entrance to the circulation, or because the material used is inert.

When typhoid-fever patients are fed, the effort to get rid of the poison (food is always a poison when it cannot be digested—please refer to the Lloyd quotation) accounts for all the terrible symptoms that are supposed to be typical of typhoid fever, but which in reality are the efforts of the body to get rid of disease—efforts of self-preservation. When the feeding has been continued until irritation has taken on inflammation, and inflammation has taken on ulceration, an opening has been made through which albumin, either pure or modified (the modified state we call "sepsis"), is absorbed; after which, death takes place.

Albumin cannot get into the blood except through an irregular route—either by hypodermic injection into the veins or arteries, or by absorption through an ulcer-

ated surface, or a solution of continuity from an injury of some kind.

Gelatinoids.—Gelatinoids are found in the connective tissues in animals (calf's-foot jelly being an example); also in the tendons, skin, and bone.

Extractives.—Extractives are such foods as beef tea and meat extracts. In making an extract of beef—which is sometimes called "beef tea"—there is often nothing in the tea except extractives—the mineral element contained in the meat. The gelatine of the meat has become so hard and coagulated that it is precipitated and is fit for nothing. Cooked in the usual manner, it is ruined as a food, and all the extractives taken out by the boiling are, as stated above, simply the mineral element.

Carbohydrates.—Carbohydrates are one of the most important classifications of food. Their composition is carbon, hydrogen, and oxygen; the last two in the proportion that forms water. Starch—dextrose—is represented by the formula $C_6H_{10}O_5$; hence its name "carbohydrate," because it is made of carbon and water. The carbohydrates include starch, sugar, and vegetable fiber, or cellulose. These foods are burned in the body and give out energy. They may be converted into fat and stored in the body. People who are inclined to take on obesity are usually very fond of sugar and starches; indeed, such people will lose their weight when deprived of these foods. The starch forms only about one per cent of the body weight; hence it is obvious that the great quantity taken into the system must be burned up, or oxidized, and in this way furnish heat for the body. It can readily be seen that, if the composition of the body is only about one per cent starch, the system must be taxed many times beyond all reason in utilizing the amount taken in by the average individual. The carbohydrates must be oxidized, and when the system is oversupplied, too much heat is generated. This favors de-

composition of the proteid element and hastens the process of putrefaction. Indeed, the carbohydrates may be likened to the explosive element in a cartridge, and the proteid to the projectile.

Fat.—Fat, or hydrocarbon, is an important element of food, serving the purpose of a heat-producer, the same as the carbohydrates. From the oxidation of hydrocarbon, heat is produced.

Fat or oil is considered of more value as a source of energy than the carbohydrates, but it is not so easily digested. Many people waste about all the fat they take in with their foods, because, on account of not being able to emulsify and absorb it, it passes out of the bowels undigested.

A certain amount of fat is necessary to keep the bowels regular. The food that is wholly devoid of fat favors constipation. Those animals that eat vegetables altogether, such as sheep and rabbits, have very constipated stools, and, if they were not anatomically constructed for taking care of these exceedingly dry fecal discharges, they would probably die of bowel impaction. A human being who would undertake to live for any length of time on such a restricted diet would very soon get into such a condition that it would be impossible to have a bowel movement at all.

Fat forms about fifteen per cent of the weight of the average man; but, of course, there must be wide variations. Those who are above weight may have thirty or more per cent of fat, and those below weight may have less than fifteen per cent—even less than ten per cent; and, indeed, sometimes we think the tissues are devoid of fat entirely.

Some writers maintain that the ingestion of fat is a factor in preventing muscular fatigue. It is said that during the Franco-Prussian war, with this end in view,

the German emperor ordered that each soldier receive two hundred and fifty grams of fat bacon per day.

Atwater gives the following table to show the uses of the different food elements:

NUTRITIVE INGREDIENTS OF FOOD

Food as purchased contains:	Edible portion—e. g., flesh of meat, yolk and white of egg, wheat flour, etc.	Water	
		Nutrients	Mineral matter Protein Carbohydrates Fats
	Refuse—e. g., bones, entrails, shells, bran, etc.		

USES OF NUTRIENTS IN THE BODY

Protein—forms tissues; e. g., white (albumin) of eggs, curd (casein) of milk, lean meat, gluten of wheat, etc. Fats—are stored as fat; e. g., fat of meat, butter, olive oil, oils of corn, wheat, etc. Carbohydrates—are transformed into fat; e. g., sugars, starches, etc. Mineral matters (ash)—share in forming bone, assist in digestion; e. g., phosphates of lime, etc.; potash, soda, etc.	All serve as fuel to yield energy in the forms of heat and muscular power.

CHAPTER II

DIGESTION AND ABSORPTION

DIGESTION

DIGESTION is the process of bringing foods to a state of solution and fitting them for absorption. This requires a number of different changes, brought about in the alimentary tract by the action of certain ferments usually known as "enzymes." There are, of course, changes in the physical properties of the food along with the chemical changes, and through the action of the two forces the useful part is assimilated, and the remainder passes off as refuse.

Enzymes.—Enzymes are the products of protoplasmic changes, and are not endowed with life. They are complex in their nature.

1. The enzymes which act upon starches convert them into soluble forms—sugar, or sugar and dextrin. We find enzymes of this class in the saliva and pancreatic juice. They are capable of converting glycogen into sugar. In plants there is a similar enzyme.

2. There are enzymes which act upon proteins, converting them into soluble substances—peptone or proteose. In animals the pepsin of the gastric juice in the stomach and the trypsin of the pancreatic juice are examples of this class. A similar enzyme is found in plants.

3. Then there are the fat-splitting enzymes, which act upon the neutral fats, splitting them up into glycerin and the corresponding fatty acids. An enzyme of this class is found in the pancreatic juice. Similar enzymes occur in seeds.

4. There are also sugar-splitting enzymes, which convert the double into single sugars. Two such enzymes are found in the small intestine. One of these acts on cane-sugar, and the other acts on maltose.

5. Coagulating enzymes are those acting upon soluble proteins, precipitating them in an insoluble form. Rennin, the milk-curdling ferment of the gastric juice, is an example of this class of enzyme.

6. Oxidizing enzymes set up oxidation processes. They are found in the various organs and tissues.

Salivary Digestion.—Food taken into the mouth is masticated and insalivated, or should be. The process of insalivation means the mixing with the food of an alkaline secretion that has the power to convert starch into sugar. The enzyme ptyalin of the salivary secretion converts the starch into sugar (maltose).

Gastric Digestion.—After the food is swallowed, it first comes in contact with the gastric secretions, and is changed into chyme. Then, upon being liquefied—brought into a semi-fluid state—it passes into the small intestines. While in the stomach, the food is acted upon by the gastric juice, which is a thin, almost colorless fluid of a strongly acid reaction. The acidity varies from 40 to 60, that being the number of cubic centimeters of test solution required to neutralize 100 c.c. of gastric fluid. But under the influence of certain diseases the acidity may be very much increased, or greatly diminished, or even entirely absent. Today there is much talk of hyperacidity, or hyperchlorhydria.

In other words, there is a belief that there is too much hydrochloric acid secreted; that from some cause the stomach glands, like the thyroid gland in goiter, become too active and secrete too much. My experience has led me to believe that in all cases where there is a hyperacidity—where patients are troubled with an acid condition of the stomach—it is invariably due to an over-

worked digestion—one that fails to secrete the proper amount of gastric juices to do the digestive act well for a reasonable intake of food. My belief in the correctness of this theory is strengthened by the fact that where patients adhere to instructions given to correct this state, they invariably get well. My prescription is a decided cutting-down of the usual intake of food. If necessary, I advise a fast of seventy-two hours; then fruit may be given for seventy-two hours; after that, the ordinary rations may be taken in moderation. Then, if the patient, after finding his digestive capacity, will respect it, he will never return to the condition where he is troubled with hyperacidity.

In addition to the free hydrochloric acid, the gastric juice contains pepsin—an enzyme—and rennin, the enzyme that curdles milk. In people who have been thoroughly weaned away from milk for a number of years this rennin is not found. It is supposed that, because of the non-use of the glands which furnish this digestive element, they have been atrophied, and when once lost, the digestion of milk is made difficult. Rennin curdles milk very rapidly at the body temperature. The casein is converted from a soluble protein into a more or less solid clot, which gradually becomes firmer and expresses all the whey that is contained in the mass. The casein of cow's milk precipitates in large, firm clots; that of human milk, in fine, flocculent particles; which explains the difference in the digestibility of the two milks.

The enzyme pepsin that is found in the gastric juice changes protein into peptone—a fluid which is very light and which can readily pass through the absorbents.

Beyond the mechanical alterations that take place because of the presence of fluid and the churning of the stomach, the starches are not acted upon by the gastric juice.

People generally, as well as the profession, are not willing to accept my teaching that bread or other starch should not be eaten with meat; but I think that my position is impregnable. All that is necessary to prove the truth is to apply common-sense. The gastric secretions are for the purpose of converting the proteids, or the tissue-making foods, into a fluid for absorption. These secretions are only stimulated by the eating of foods that require them. For instance, if a patient eats a starch meal—toasted bread and butter—the chewing of the starch in the mouth excites the secretion that is peculiarly adapted to the digestion of the starch; that is, the saliva. Starch-eating in no wise stimulates the secretion of the gastric fluids. When meat is eaten, it causes a flow of gastric secretions. Like produces like. Necessity governs the operations of digestion. The elements of a food that are peculiarly fitted to a certain digestive fluid cause this fluid to be secreted. If this is true, then, when starch and meat are eaten together, the stomach is made a fool of; it is forced to throw secretions into the stomach that are necessary to take care of the protein—the meat—but which are in chemical opposition to the digestive fluids that are required for taking care of and digesting the starches. Hence, where both these foods are taken together, the meat will be digested in the stomach, and the starch will not. As fast as both are melted down, they pass through the pyloric orifice of the stomach into the small intestines. There the digestion of the starch is again taken up by the alkaline intestinal secretions. But all the time the starch is in the stomach it not only is not permitted to digest, but it also hinders to a certain extent the digestion of the meat. Every act of eating the two together invites indigestion and gastric derangement.

Suppose the whole world does eat in this way; I can point my finger to the fact that the whole world is sick—

that there are not one-tenth of one per cent of average people who can pass a strict examination for health. This being true, there must be something desperately wrong with our manner of living and eating.

Intestinal Digestion.—When food has passed into the small intestines, it is acted upon by three secretions; namely, pancreatic juices, intestinal juices, and the bile. All these secretions act together, but for the sake of simplicity they will be taken up separately.

1. The Pancreatic Juice.—This fluid is emptied into the intestines together with the bile, or close to the opening where the bile enters, and both are mixed with the food material at the same time. The pancreatic juice is alkaline in reaction and contains at least three, and probably more, enzymes.

One of the enzymes, trypsin, is a more active ferment than the pepsin of the gastric juice. It continues the digestion of the proteins.

Another enzyme present in the intestines is amylopsin, which converts starch into sugar in the same way as the ptyalin of the saliva. Inasmuch as the ptyalin digestion ceases with the entrance of the food into the stomach, especially when meat is eaten with starch, it must be resumed in the intestine. It is important that the starches should be completely digested in the small intestine, particularly as a large part of the heat and energy consumed by the body is derived from some form of starchy food.

Steapsin, a third enzyme, splits up the neutral fats into glycerin and free fatty acids.

The pancreatic juice and bile secretions emulsify oils, and, where there is a lack of secretion from the liver and pancreas, there are invariably constipation and intestinal indigestion. Those who are lacking in these secretions force themselves into catarrh of the large intestines, known as colitis, by persisting in eating starches and

sugars. The colitis perhaps is due entirely to the constipation and the local poisoning resulting from the infection of excretions. To cure constipation, it is necessary to correct the health of the patient—correct his diet so that there will be re-established a normal secretion from the liver and pancreas. All reliefs, palliatives, and aids used for overcoming constipation are of very little worth, so far as bringing about a normal state of the system is concerned. Those who are troubled with a great deal of gas in the bowels, constipation, and passing of mucus in the stools, should be suspicious that there is not a normal secretion from the liver; hence the use of foods that are digested by the intestinal secretions, such as sugar, starch, and oils, must be suspended, and reliance put upon vegetables, meat, fresh fruit, and such sweet fruit as will be taken care of by the mouth and stomach—grapes, oranges, perfectly ripe apples, raisins thoroughly masticated, etc.

2. The Intestinal Secretion.—This secretion is strongly alkaline from the presence of sodium carbonate, and this may aid in the emulsification of fat. Otherwise the intestinal secretion probably does not have any action on the proteins and fats. The source of this soda is the decomposition or splitting of salt (chlorid of sodium) into soda for the liver and hydrochloric acid for the stomach. The secretion of the intestines contains three ferments which act upon carbohydrates.

As we descend the intestinal tract, the quantity of enzymes contained in the intestinal secretion becomes smaller. The large intestine secretes mucus, but not enzymes. There are several less important fluids secreted in the small intestines.

3. Liver—Bile.—The liver is one of the most important organs of the body. It is the reservoir or warehouse for glycogen. One of its important functions is that of secreting bile, and bile is an adjuvant to diges-

tion. Where there is a failure to secrete the normal amount of bile into the intestines, constipation follows. The bile is looked upon as antiseptic. It has a tendency to prevent decomposition. Where the normal amount is not secreted into the intestines, there is a tendency for intestinal indigestion, decomposition, infection, and malodor. The bile assists in the emulsifying of fats, and favors decidedly their absorption. When there is a lack of bile, the feces are very light in color, besides having a rank odor. It would be perfectly natural for putrefaction to take place when there is a lack of bile, because withholding this secretion favors indigestion.

Some authors declare that the whole supply of bile may be diverted and still the animal maintain health. But the question is, how long? Observations of such a character must extend over a long period before they will be of much importance. We have altogether too many snapshot verdicts in regard to cause and effect in the science of medicine. In other words, conclusions are arrived at with too small an amount of data to make them reliable.

Glycogen is soluble in water, and is of the same general chemical formula as starch. The digestive juices act on glycogen in the same way as on starch. Glycogen is generally recognized as animal starch. As stated before, the liver is a warehouse, and muscular tissues throughout the system are distributing agents. As the material is used up in the body, it is resupplied from the liver, unless there is an intake of food. It appears in greatest quantities after meals, and disappears altogether after fasting.

Carbohydrate foods aid directly in the formation of glycogen. It is said that glycogen can be made from proteins, and that it occurs pathologically in diabetes. Where there is more sugar taken into the system than can be utilized, it passes off by way of the kidneys. It is

supposed that glycogen changes into dextrose by the action of enzymes. Glycogen in the muscles is oxidized, and its energy converted into muscular force.

Another function of the liver is the formation of urea. After the nitrogenous elements have been consumed, they are eliminated from the body by way of the kidneys, in the form of urea. That urea is formed in the liver has been proved experimentally.

ABSORPTION

The process known as absorption is divided into two processes; or it may be said that it takes place in two ways. The material to be absorbed either enters directly into the blood, and passes thence to the liver; or it enters the lacteals, and is passed through the thoracic duct to enter the blood current of the jugular and subclavian veins.

Stomach Absorption.—Formerly it was believed that much absorption took place in the stomach, but now some authors declare that food is not absorbed in the stomach. Some even believe that water is not absorbed there, but that all the contents of the stomach must pass into the small intestines for absorption. This may or may not be true. It does not appear reasonable that some absorption does not take place in the stomach. The mucous membrane of the stomach must take up fluid. The action of the absorbents is so rapid that it does not seem reasonable to believe that the stomach should be excused from its part in this work. If certain drugs can be absorbed by the mouth, and in a very few minutes be detected in the urine, it does not seem reasonable to believe that poisons and other substances cannot be taken up by the stomach.

It is well not to take too restricted views of this subject. A happy medium, it seems to me, is best.

Fats are not absorbed in the stomach, because they must be emulsified, and this process cannot take place until the oils or fats reach the pancreatic and liver secretions, whose functions are to emulsify them and prepare them for absorption. The fatty acids are probably dissolved out of the fats by the acid of the stomach, and then absorbed. As proof, the odor of oil is thrown off by the lungs too soon after swallowing it to justify a belief that it has had time to be taken up in the intestine.

Intestinal Absorption.—Absorption takes place principally in the small intestines. The food is supposed to pass out of the small intestines in from five to twenty hours. On entering the large intestines, the food is in a fluid condition, notwithstanding the fact that a large amount of water and salts has been taken out during its passage through the small intestines. The absorption of water is supposed to take place principally in the small intestines. The water that is absorbed is taken up there by the capillaries without first passing through the lacteals.

Protein material is absorbed after having been converted into peptone or proteose. It is believed that egg albumin may be absorbed directly.*

The carbohydrates are absorbed as dextrose or levulose. Dextrose can be found in the blood. The absorption which takes place in the large intestines is supposed to be chiefly that of water.

The material that is to pass out of the body as feces enters the large intestine from the small intestine in a very liquid condition. The fluid portion is absorbed during its progress through the large intestines, and is supposed to require about twelve hours in reaching the rectum, at which point it is almost solid.

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*See quotation from Professor Lloyd's article, pages 73-75.

CHAPTER III

CLASSES OF FOODS*

ANIMAL FOODS

THE animal foods are considered by many the most important in the human dietary. Then we have another class of people, known as vegetarians, who think that meat should have no place in the human dietary. It is my opinion that there is a place for all foods; and, as meat, milk, and other animal foods are easier of digestion than the grains, it shall be my endeavor to point out, as nearly as I can, the place that animal foods should occupy in a well-balanced dietary system.

The important element in animal foods is proteid. Animal foods are so thoroughly digested that they leave but little residue in the intestines; hence a certain amount of vegetables and fruit should be eaten with meat to give the bowels enough waste product to secure an action each day. Besides, raw vegetables and fruit cause the elimination of urea—prevent meat poisoning.

The various forms of animal food are Milk, Eggs, Meat, Fish, and Gelatin.

MILK AND MILK PRODUCTS

Milk in its composition represents the four nutritive constituents of a mixed diet; namely, proteids, carbohydrates, fats, and mineral salts. Unadulterated, it contains from 90 to 84 per cent of water, varying with the quality of the milk.

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*I am indebted to the United States Department of Agriculture, Professor Sherman, of Columbia University, and perhaps others, for having furnished the principal data on food values used in writing this chapter.

COMPARATIVE COMPOSITION OF VARIOUS KINDS OF MILK

Kind of Milk	Water	Total Solids	Total Solids						Fuel Value per Pound
			Protein			Fat	Carbohydrates (Milk Sugar)	Mineral Matters (Ash)	
			Casein	Albumin	Total Protein				
	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Per Cent	Calories
Woman	87.4	12.6	1.0	1.3	2.3	3.8	6.2	0.3	319
Cow	87.2	12.8	3.0	0.5	3.5	3.7	4.9	0.7	313
Goat	85.7	14.3	3.2	1.1	4.3	4.8	4.4	0.8	365

The proteid constitutes about 3 per cent of the composition of milk. Formerly it was thought that milk carried a larger percentage of proteid. The principal proteid is casein, which is in a state of solution—said to be kept so by its admixture with phosphates of lime. It is to this mixture that milk owes its whiteness.

Besides casein, there is lactalbumin—another proteid—which is found in milk in a very small quantity, making up only one-seventh of the total proteid in cow's milk.

Proteids in Milk.—There are two kinds of proteids in milk; namely, casein and albumin. In cow's milk there is more of the former, the proportion being given as four parts of casein and one of albumin. In human milk the proportions are equal.

The albumin proteid is much easier of digestion than the casein proteid; hence human milk is easier of digestion than cow's milk.

It is supposed that the casein of milk is kept in solution by phosphate of lime. This is the reason why doctors generally recommend that lime-water be put in milk in baby-feeding. Possibly the lime-water prescription is oftener due to force of habit than to the result of any

special thought on the subject. It is rather far-fetched to imagine that calcium oxide (quicklime) can take the place of the phosphate of lime that is found in milk.

The fat is suspended in the milk in the form of minute globules, which give the milk its white color and opacity. Fat averages about 4 per cent of milk, or about 31 per cent of the total solids.

The chief carbohydrate of milk is lactose, or milk sugar. Milk sugar is not nearly so sweet as ordinary sugar, and is less soluble in water. It reacts to Fehling's solution like glucose. In the presence of the lactic acid bacillus it is converted into lactic acid, which causes the milk to turn sour. Lactose forms about 38 per cent of the total solids.

Milk contains about 0.7 per cent of salts. These salts exist chiefly in the form of phosphates, chlorids, and sulphates. Potassium salts occur in larger quantities than do sodium salts. Calcium salts are very essential to young, growing animals, inasmuch as they play a very important part in the formation of bone.—Sherman.

The Cow Should Be Fed Properly.—When milk is from a cow properly fed, watered, and cared for, it will carry to man the elements necessary for his health, growth, and well-being.

When children are to be fed cow's milk, too much care cannot be given the cow. Besides having proper food, she must be under the proper psychical influence. All animals show a perversion of quantity and quality of milk when irritated and treated unkindly. Abuse is a boomerang that returns to curse its author. Mothers that ignorantly or wilfully abuse their own health often kill the thing they love (their children) by forcing an alteration in their milk. Mothers should be protected from influences that affect them detrimentally. Until the human race learns how to protect its mothers, the ideal man will not evolve.

Milk Inspection.—Milk inspectors should not stop with viewing dairies and analyzing the milk; they should know about the food and water given, and all that it is

possible to learn of the character of the milkers and the keepers of the cattle. Men of moody disposition should not have anything to do with the animals that furnish food—meat and milk. Indeed, plant life will be more or less affected by the moods of the caretaker.

Milk is a delicately constructed organism, and should be cared for properly. As in the case of all organisms, one of the most important requirements for its health and life is cleanliness. Sluts and slatterns can very easily convert the best milk into a seething gehenna. In truth, there have been more children sacrificed to the Moloch of filth than were ever dreamt of being sacrificed to the Moloch of the Canaanites. Cleanliness must become organized knowledge—the unclean must live the knowledge before it becomes their very own.

The Proper Way to Feed Milk.—When it is possible, children that are fed cow's milk should have it fresh from the cow, while it is still warm with animal heat. A good way to feed children during the summer months is to give them warm milk from the cow or goat, morning and night, and all the fresh fruit—with spinach, lettuce, or cabbage—that they can eat, at noon. Fresh, ripe fruit is quite enough, without vegetables, when fruit can be had. The spinach is much more alkaline than lettuce or cabbage; hence it is the first choice. To prepare: Grind the vegetable in a vegetable mill, then rub it through a sieve. Prepare the fruit (blackberries are best when they can be had, or any well-ripened fruit) in the same way; after which, mix the fruit and vegetable together in equal parts. Children with teeth, and old enough to chew, may have a salad of the fruit and spinach, dressed with salt and olive oil, or the regulation vegetable salad. Animal foods tend to reduce the alkalinity of the fluids of the body; hence the need of alkaline vegetables. What kind of fruit? Any fresh fruit that is not too sour. The fruit should be fresh.

CHEMICAL DIFFERENCE BETWEEN HUMAN AND COW'S MILK

	Human Milk (Per Cent)	Cow's Milk (Per Cent)
Water	87.0–88.0	87.0–88.0
Proteid	1.0– 2.0	3.0– 4.0
Fat	3.0– 4.0	3.5– 4.5
Sugar	6.0– 7.0	4.0– 5.0
Mineral matter	0.1– 0.2	0.7– 1.0
Reaction	Alkaline	Acid

Milk is the exclusive diet of young mammals, but, owing to the fact that the proportion of proteins and fats is in excess of carbohydrates, it is unsuited as an exclusive diet for adults.

Changes Common to Milk.—Milk, on standing, separates into cream on top, and a lower part, which is called "skimmed milk" after the cream has been taken away. The skimmed milk is of a bluish-white color and free from fat.

The specific gravity of milk ranges from 1.027 to 1.035, and it freezes at a slightly lower temperature than water.

Milk exposed to the air develops acidity: the milk sugar changes to lactic and other acids.

The 0.7 per cent of salts found in milk is made up of phosphates, chlorids, and sulphates. The potash salts predominate over the soda salts. Lime is necessary for the bony development of the young.

Milk takes on the odor and taste of odorific foods eaten by the cow. The ragweed gives milk a very nauseating taste.

Heat changes milk. To pasteurize milk causes a change, but it is not known what the change is, and this is why children should be given milk that is warm from the cow. When this cannot be done, the milk should be put into bottles that have been boiled and sunned, and, when possible, the milk should be kept in a warm place. The object in keeping it warm is to prevent chilling, which renders it less valuable as a food for babies and

invalids. Milk should be agitated as little as possible when it is to be fed to sick babies.

Scalding milk changes the taste and renders it easier of digestion, but less nutritive and more constipating. Because of this tendency, scalded milk must be used very carefully. In diarrheas, scalded or boiled milk is often the most appropriate food until the bowel derangement is overcome.

The freezing of milk is resorted to as a means of keeping it during transportation. Once frozen, it should be kept frozen until used. Cold storage is frequently resorted to. It is said that milk kept at 0° C. develops bacteria.

Ice-cream takes on change when kept for a long time, and severe poisoning has been known to have taken place in those who have eaten of cream that has been kept for months.

Preservatives are frequently used to keep milk from changing, the most common being formaldehyde, boric acid, borax, salicylic acid, and benzoic acid. Milk that does not sour in a reasonable time should be tested for drugs. Milk should not be drugged.

According to careful analysis, milk is said to be a fairly economical food, compared with other animal foods; a quart of milk being approximately equivalent to a pound of steak, or to eight or nine eggs.

The carbohydrate of milk (lactose), like other sugars, does not require the action of the salivary or pancreatic juice for its digestion; and it is not so liable to ferment as sucrose and glucose.

If one quart of milk is equivalent to a pound of steak, it should be obvious to anyone how easy it is to overeat.

Suppose a hearty meal is eaten and, instead of using water as a table beverage, a glass or two of milk should be taken; this means that the equivalent of from one-

fourth to one-half pound of steak is added to the meal. The difference, however, would be that, if the overeating is of milk, the digestive system per se will not be so heavily taxed; for the carbohydrate of milk is already in solution and, like all other sugars, does not require the action of the salivary or pancreatic secretions for its digestion. Besides, it has the advantage over sucrose and glucose of being less inclined to ferment; hence it is less liable to irritate the stomach.

Many people are troubled with gas accumulating in the stomach and bowels when eating freely of fresh fruits. All such should stop fruit and live on milk for a few days; then eat less fruit when resuming the fruit diet.

People with a very sensitive state of digestion are known as very nervous people—sometimes they are very irritable. Where they can take hot milk with a relish, it usually agrees with them, and they improve on milk when they grow worse on almost every other food.

It should not be forgotten that it is just as necessary to try to correct the mental state as it is to try to correct the physical. An irritable state of the mind once started is governed by the law of motion; hence its tendency is to continue, unless the will is brought into play to stop it.

The Protein Requirement.—The solution to the question of how much protein is required lies to a greater or less extent in milk. Human milk has little else at the start than carbohydrates; for the infant needs only heat. As its activity increases, the percentage of protein increases to meet the demand of waste and growth. Waste is not met in the first days of infantile life; for all babies decline in weight the first few days after birth. The helplessness of human babies, as compared with the young of animals, is marked; and this difference is indicated by an analysis of the milk of animals, all of which contains more protein than the human milk.

The young of animals that locomote immediately after birth must be supplied with protein for muscle-building. The chick is a marked example; for it begins at once to pick at its mother's food.

The argument brought forward by Professor Taylor is so good that I quote it verbatim. In writing of the "Protein Content of Milk," he says:

> The most striking statistical evidence bearing on the question lies in the protein content of milk. This, however, is not in favor of, but is opposed to, the idea of a high input of protein in the standard ration. It is a fair argument that the amount of protein relatively necessary in the diet of a growing infant may be taken as an amount fully competent in the adult. To the mind of the writer, the sole escape from this conclusion must rest upon some hypothesis that the dynamo-genetic utilization of protein possesses a peculiar and exceptional value (which means, if there is not some unknown way by which protein can be converted into energy); unless it can be shown that, in the conversion of protein heat-energy into work, the protein input per unit in infancy must be regarded as the maximum coefficient, since at no other time of life are such demands made upon the anabolic (building-up) functions.

A pound of whole milk is supposed to contain three and three-tenths grams of protein, and man requires one gram per kilo of body weight. One kilo equals two and two-tenths pounds. A person weighing one hundred and forty pounds weighs approximately sixty-four kilos. If the protein intake required is one gram per kilo of bodily weight, then a person weighing one hundred and forty pounds, or sixty-four kilos, requires sixty-four grams of protein. If one pound of whole milk contains three and three-tenths grams, a man or woman weighing one hundred and forty pounds requires from six to ten quarts a day. This estimate is based on tables furnished by the government. I would not recommend more than one-half the amount, or ten pints. This means, of course, an exclusive milk diet. There are estimated to be three

hundred and thirteen calories in one pound of cow's milk; ten pints carry a caloric value of three thousand one hundred and thirty calories. From two thousand to six thousand calories is said to be the amount of heat generation necessary to man to meet the exigencies of his life. An estimate is made that from four to five thousand calories are required by a laborer. If so, and he were fed milk, he would require ten quarts a day; or from five to eight pounds of meat a day; or three pounds of baked beans; or twenty ounces of butter or fat pork; or, for an ordinary supply of food for a man not at work, three pounds of bread and three pints of buttermilk. Is it any wonder that men who work hard die early, when fed according to the fuel laws of an engine?

No person who has any sense of proportion can read the estimates made on food requirements by our best text-books without a feeling of disgust at the amount recommended, or, I would better say, the amount declared to be necessary for the maintenance of a digestive equilibrium.

Combinations.—Milk taken with the ordinary meals builds catarrh. Why? Because of overeating. When milk is used as a table beverage, few people give any thought to its food value, but eat as much of the common food of the table when taking milk as when taking water.

Suppose two glasses of buttermilk are used at a full meal, instead of coffee, tea, or water. One hundred and sixty heat units, and over three grams of protein, are added to the meal. One-tenth as much building material as is required by the body is taken in without need. If whole milk is used, three hundred and ten units, and three and three-tenths grams of proteid, are added above what is necessary. This crowding of nutrition develops a catarrhal state that will be followed by hay-fever, asthma, or catarrhal inflammations of various mucous membranes. Pneumonia and other

acute diseases follow in the wake of crowded nutrition. Fibroid tumors and uterine catarrh are always found among women who have broken down their health by crowding their systems with food, bringing on gastro-intestinal indigestion, constipation, autotoxemia, etc.

When milk is used, no other animal food should be used in the same meal. Three quarts of whole milk furnish nineteen hundred calories and seventy-five grams of protein. This would serve for a summer diet, but more heat, as well as protein, would be required for winter. Four ounces of raisins with each quart of milk would add one thousand and fifty heat units to the day's supply. Dates and figs add about the same amount of heat to the body as raisins.

The best fat for those who have lung derangement is cream.

Standard milk carries from three and a half to four per cent fat. Milk carrying eighteen and one-half per cent fat is as near pure cream as lung patients should indulge in.

A glass of this milk contains four hundred and forty calories, and only sixty-four hundredths per cent of protein. Add to the glass of cream a glass of buttermilk, and this restores the protein content of a pound of milk. Five pints of one-third, eighteen per cent cream, and two-thirds buttermilk, contain approximately twenty-two hundred calories and thirty-four grams of proteid.

During the summer months, if more heating food is desired, sweet, fresh fruits may be added to the milk.

A pound of buttermilk is supposed to carry thirteen and a half grams of proteid. It is obvious that the soda-fountain business—the drug-store habit of drinking buttermilk between meals—will add to the sum-total of the usual sickness of the community by crowding nutrition. A pound of beer will not do so much harm as a pound of buttermilk. The prohibition of alcoholics, and the

substitution of milk, eggs, and other food-drinks, will not raise the general efficiency of the people; quite the contrary, there will be more diseases built.

The proteins of milk are highly nutritive—so declared by most dietitians. The thought suggests itself to my mind that the reason for the proteins of milk being almost wholly digestible—about ninety-eight per cent digestible even when taken with a small amount of bread or other solid food—is because milk is not a finished product; it is in the developmental state; it has not finished its destiny in the process of evolution; its differentiation has not been completed. As a food it belongs to the vital class of foods to which belong eggs, nuts, and seeds. These foods are possessed of more genesial power than meat, which as a food has reached the acme of its synthetical power and is possessed of a very low, if indeed it can furnish any, coefficient energy in the process of digestion.

So vital is milk that its proteins not only show a high coefficiency in digestion, but they show an adaptability for bringing about a storage of protein in the body. The reason, advanced by a few authors, is that the casein contains phosphorus as an essential constituent. Rosemann has proved that nitrogen and phosphorus are more readily obtained with a diet of phosphoprotein than with simple proteins and inorganic phosphates. The idea of the difference in the proteins of matured foods is that the former foods are in the ascendency, or on the evolutionary side of life; while the latter are on the involutionary, or disintegrating, side of life.

Again we are reminded that, if we would feed the body the mineral elements, we must find them properly organized in food-stuffs; for in no other way are they assimilable.

Children who are early weaned from the use of milk suffer much from the lack of cell salts. When children

are taken from milk early, and are taught to eat without it, they do not develop much desire for fruit. They eat so little fruit and raw vegetables that they become dysemic—develop an abnormal composition of the blood. When this state is joined by autotoxemia, these subjects are in line for any and all diseases peculiar to children, and later on to all the diseases peculiar to adult life.

The use of milk—which is the natural food of growing children—with fresh, uncooked fruit and vegetables would build children normal in mind and body. Instead of sickness being the rule in childhood, it would be the exception, as it should be.

What has supplanted milk as a food in growing? Bread, and bread, and more bread; breakfast foods of all kinds. Sugar and sweets of all kinds are used to force eating.

Bread and butter is not enticing enough; jelly, jams, and preserves are used to force eating beyond the digestive capacity, which results in disease.

Many mothers think it unkind in them to require their children to eat bread and butter without a spread of sugar, jelly, jam, honey, or something to make the bread and butter palatable.

If bread without butter is not palatable, the child should fast until normal hunger returns. Any sweets are bad to eat with bread; for they induce overeating. Besides, fermentation of the cane sugar will in time develop so much indigestion that the alkalinity of the blood is reduced and resistance to disease-producing influences is lost.

Children abused in this way lose all desire for milk, and when it is taken, it is to quench thirst in place of water, which is a great mistake. Milk is food, not a drink, and it should never be used as a table beverage. It should always be taken slowly, and eaten as food.

The custom of looking upon milk as something superfluous and of no great consequence in a meal is a serious dietetic mistake.

Do not forget that a quart of whole milk represents six hundred and twenty calories of heat and fourteen plus grams of protein. Three meals of a quart each amount to eighteen hundred and sixty calories and forty-two and a half grams of protein—about three hundred and sixty calories short, which could be made up by eating two ounces of raisins with each meal; and the three and a half grams of proteid short could be made up by eating a saucer of cottage cheese for the noon meal, in addition to the raisins and milk.

It is common to eat bread and milk. But simply because this is the custom is no evidence that it is not a dietetic error, and should be respected by those of very delicate digestions. Fruit* and bread, and meat and bread, are eaten together, but the custom is bad.

Because customary errors do not kill on the spot, unreasoning people cannot be induced to see their mistakes and profit from the knowledge. These people ought to know that the first drink does not make a drunkard, nor the first smoke make a confirmed smoker.

Milk would be a much more valued food if it were eaten oftener without other food, and if it could be impressed upon the minds of the people that it should not be taken in large amounts until the system is prepared by eating light meals at first. Those who are catarrhal should fast for two or three days; then take a pint of milk three times a day for three days before taking full meals of milk. Then, when other food is to be eaten, stop milk, and eat fruit for the first day or two; then

*Those who have no catarrhal derangement of the stomach, no irritation from acid fermentation, may eat fresh, uncooked fruit with starchy foods.

partake of other food lightly for a few days. Sudden changes should not be made from heavy eating of one kind of food to heavy eating of another kind.

Milk Digestion.—When milk enters the stomach, it is coagulated by the hydrochloric acid and the rennin of the gastric juice. These curds are coagula, consisting of casein and a portion of fat. They vary in size and consistency according to the amount of milk taken and its state of dilution when taken. Adding water to milk causes it to coagulate into a lighter curd—one that is more easily penetrated by the gastric juices. This curd or casein gradually melts under the influence of the gastric secretion, and is converted into peptone. Peptone is digested albuminoid—it is food brought into a liquid state fit for digestion. It should be remembered that milk is a fluid, but it requires digestion, and before the digestive process has been completed, the milk has been brought into a solid state; that is what the curd is. Many people think milk and soup are easy to absorb or digest because they are fluid. This is a mistake. These foods require digestive power equal to solid foods. Soup is not absorbed as soup—it is absorbed as peptone.

Boiling Increases the Digestibility of Milk.—Boiling increases the digestibility of milk, the curd being deposited in a more flocculent form. It is said that if the milk is previously diluted with a little lime-water, barley-water, or one of the aerated waters, such as Vichy, the curds formed are smaller and softer, and the milk often rendered more palatable.

BUTTERMILK

Water	88.0
Nitrogenous matter	4.1
Fatty matter	0.7
Lactine	6.4
Saline matter	0.8

Buttermilk is formed during the manufacture of butter. It contains a fraction over four per cent nitrogenous

matter, whereas whole milk averages about three and one-third per cent of nitrogenous matter, or protein. When the cream is taken away from milk, it naturally increases the amount of protein to the pound of milk.

A very good way to make buttermilk, where there is no objection to cream, is to allow the whole milk to clabber; then beat it thoroughly with an egg-beater. In this way small families can furnish themselves with all the buttermilk they want. If there are members of the family who have stomach derangement and who cannot digest cream, the cream should be skimmed off the clabber-milk before it is beaten into a buttermilk.

It is the fashion nowadays to make buttermilk by using the Bulgarian bacillus. This is one of the recent medical foods that have no excuse for existing, because it has been proved by the death of its discoverer that it does not prolong life.

Milk should be allowed to go through the regular process of souring, if we would have an ideal milk. My belief in the germ theory is not great enough to give it my support, even to the extent of using Bulgarian germs to produce buttermilk. It is absurd to believe that the Bulgarian germs are any better than the American germs. If we will allow our milk to go through the natural process, it generates its own germs and its own acids. Then we can either churn it in the regular way, or use an egg-beater when only a small amount is to be made. When a family gets used to manufacturing its own buttermilk, it will certainly not depend upon milkmen, nor upon the market, where too often they get a poor article.

Combinations.—Those who have catarrh, those who suffer with hay-fever, should avoid dairy products, so far as milk is concerned; and in some cases the amount of butter eaten should be limited. A very nice noonday lunch may be had by taking two to four ounces of raisins and a glass or two of buttermilk. But those who

have catarrh—those who catch cold easily—should not eat this kind of lunch. Fresh fruits are better. The sweet fruits are very much better than sugar; yet those who are predisposed to catching cold, and those who are subject to catarrhal fevers, should avoid both the dry, sweet fruits and milk until in perfect health, and then for some time afterwards take of such foods sparingly.

People frequently ask why milk is not good for those who have catarrh. It has been proved, after years of experience, that milk increases the catarrhal discharge. Those who have lung diseases—bronchitis—and those who are subject to much expectoration, will find that the expectoration increases decidedly under the influence of a milk diet. This alone is sufficient to justify tabooing the use of milk as a food in the case of those who are afflicted with a cough. Milk will increase the discharge of mucus from the bowels when there is colitis, and little children are inclined to pass mucus. Stools should be watched, and, when mucus appears, the child should be fasted; or, if there is any food given, it should be nothing more than a little fruit juice until the discharge is fully controlled. It is a mistake to use buttermilk, or any milk or cheese, in the same meal with meat.

CURD AND WHEY

Curd is clabber-milk before all the whey is removed. When all the whey is taken from curd, we have casein. Cheese is another name for curd. By adding a little rennet or essence of pepsin to milk, it can be made to coagulate. This is called junket. Junket is sometimes made for sick people with sugar and flavoring added. Such mixtures should never be recommended for sick people. The sick should go without food until comfortable, and, when they begin to take food, they should

not have such concoctions prescribed; for sugar and flavoring have a tendency to derange digestion.

Whey is the fluid drained away from clabber-milk, and it is used as a drink and food by those who do not take milk well. As a food there is nothing to it except a few salts, and possibly a little carbohydrate.

MALTED MILK

All artificially prepared foods are a delusion and a snare. If malted milks are used with natural food, the individual may thrive because of the nutritive value of the natural foods eaten, but certainly not because of the artificially prepared milk.

It has been discovered of late that milk contains substances, other than the known proteins, fats, carbohydrates, and salts, which are important to growth.

According to Osborne and Mendel, when protein and fat are removed from milk, the residue is more efficient in nutrition than a mixture of milk sugar and salts.

Hopkins has shown the growth of rats fed on "artificially purified food," and on a mixture with small amounts of pure milk added. He declares that the rats do not thrive or grow on the artificially prepared food, but that invariably growth begins when milk is added.

Mendel has found that a protein which does not furnish the amido acid (lysin) may serve as the exclusive nitrogenous food for a full-grown animal, but will not support growth. This is vital knowledge when infant-feeding is under consideration.

Notwithstanding the fact that meat and bread are looked upon as the most important and necessary foods—foods that carry all the elements necessary for the maintenance of health and life—when man is given these foods to the exclusion of other food, he does not thrive. It requires something besides this material to supply resist-

ance and power to live. The largest part of the total solids of the food is burned, yielding energy. Sherman says that during growth most of the fat and carbohydrate, and the greatest part of the protein, are used to keep up the activities. The elements not contained in most proteins—namely, the salts (lime, phosphorus, potash, iron, etc.)—are fully as necessary for body-building, and without them the body cannot thrive. These elements are rendered more or less inefficient by cooking, and unless they are supplied in fresh, uncooked fruit, vegetable salads, and milk, those who eat of such food will not thrive.

Upon the presence in the body of salts derived from the food, either directly or as the result of its oxidation in the tissues, depend such important properties and processes as the solvent power and osmotic pressure of the body fluids, the electricity of the muscles, and the maintenance of the normal neutrality or slight alkalesence of the blood and tissues.—Sherman.

Milk is the only article of diet that contains all the food elements required by man.

The ash constituents of milk include all of the so-called inorganic elements necessary to the normal nutrition of man—some of those exist in the milk as salts, some as constituents of the organic matter, some in both forms.—Sherman.

Such diseases as hardening of the arteries, dropsy, cataract, glaucoma, chronic constipation, chronic diarrhea, and many others not necessary to name, are caused by a lack in the system brought on, not so much from foods that fail to carry the necessary building elements, but because they fail to supply amido acids.

The yields of some of the more important complex amido acids, such as tryptophan, tyrosin, and lysin, are higher from the milk proteins than from food proteins in general.—Sherman.

These items are all important. Then, when it is considered that milk is the cheapest food on the market, its value as a food can be understood.

Families that must live on twenty-five cents a day, or less, can get the necessary body-building material from milk and bread, or milk and rice. The time may come when the mixing of alfalfa or cotton-seed meal with the ordinary flours of daily use will give the poor man's bread extra value. Raisins, dates, figs, cheese, nuts, and milk give bachelors and light housekeepers a solution to their cuisine problems.

Poor people can get on with milk at ten cents a quart, and bread at the usual market price; but they cannot live and have health on bread, meat, coffee, and tobacco.

People generally look upon milk as a baby food, but not as a food to depend upon for growing children from one year on through school life. The foods thought necessary—such as bread, meat, cake, pudding, pie, and sweets—often build body and mental inefficiency, disease, and early death. Fresh fruits and salads must not be forgotten.

The people, encouraged by many physicians, have faith in manufactured foods, and there appears to be a tendency to set aside milk and take on more substantial foods. This is commercialism—selfishness—not science.

If growing school children should be fed whole-wheat bread and butter, with fresh fruit or a salad and a quart of milk each day, and kept away from cake, pie, and candy between meals, they would develop into larger, stronger, healthier children and more mentally alert men and women than the present style of eating can possibly develop. Give children all the whole-wheat bread and butter desired, followed with a pint of milk, morning and evening; fruit, all desired, at noon; no eating between meals.

When children are fed improperly—are fed palate-ticklers to the neglect of proper food—they lose taste for the food that will supply them with the needed body-builders; and, as a result, we see sickness among children the rule and not the exception; a large mortality, which is a disgrace to civilization; the developing of tuberculosis, and many deforming diseases, wholly unnecessary.

Tuberculosis will not develop in properly fed subjects—only in those who are auto-infected and starved by being given food deficient in the building elements, and especially those elements of vital importance that are probably autogenerated only in normal environments.

Cause of Disease of Children.—No doubt tonsilitis and skin diseases—the so-called contagious diseases—are consequent on deprivation of elemental tissue-building materials—I mean vitalized building material. The laboratory-built man is all right, except that he does not breathe; his arteries do not bleed. The laboratory egg will not hatch. Laboratory cures are all right, but they do not cure. Scientific education, with nature left out, is all right, but it does not educate. Synthetically created life is enough to put spectacles and a vision-haunted visage on the father of the laboratory children, but the latter will never squeak, squall, nor stamp their toe-nails off. They may have hearts, but they will never palpitate with love—never!

CHEESE

Water	36.0
Protein	31.0
Fats	28.5
Salts	4.5

A recent compilation by Doane and Lawson describes three hundred and fifty varieties of cheese.

It is unnecessary to describe all the varieties of cheese. Few readers care to know anything about cheese, except

to know if this class of food is fit to eat, and then to know in what combinations it may be eaten.

Cheese contains the casein and fat of the milk, and the whey that does not drain out of the curd. This remaining whey contains a small amount of lactalbumin (the soluble salts), and the milk-sugar or lactic acid resulting from its fermentation.

A pound of cheese represents the casein and fat of a gallon of average milk, except that the soft cheeses, like Brie, Camembert, and Neufchatel, are wetter, and the hard pineapple cheese is drier. The different varieties of whole-milk cheese average in composition about one-third water, one-third fat, and one-fourth protein.

Cheese sells at about the same price as steak; yet it contains more protein and fat. Cheese does not represent whole milk; it does, however, carry a good supply of the salts.

Many declare that cheese is hard for them to digest, but this is because they do not know how to eat it. Those who declare that cheese disagrees with them might say the same of steak, eggs, fish, or any other standard food, if they should eat these foods in the same way; namely, at the end of a meal as a dessert. Surely, if a steak, an egg, or a helping of fish were served with a piece of pie at the end of a full dinner, there would be more people complaining of indigestion from this cause than of the after-effects of cheese eaten under similar circumstances.

Combinations.—Cheese should be recognized as a standard protein-bearing food, and should be eaten as meat, eggs, fish, dry beans, and other tissue-building foods.

Meat, non-starchy vegetables, and a combination salad is recognized as a "Tilden dinner" by the followers of my diet ideas. Cheese, eggs, fish, dry beans or peas may each do substitute work for meat, with a similar accompaniment of cooked and raw vegetables.

Cheese should be thoroughly masticated, so as to render it easier of digestion. The nature of cheese is an infiltration of casein with cream or fat, and it should be broken down thoroughly by the teeth, which allows the digestive juices to come in contact with more of the mass eaten. It should be eaten with either a salad or fruit.

The eating of bread and crackers with cheese is as great a dietetic error as eating meat and bread, or meat and potatoes, together. The least harmful of starch- and meat-mixing is the eating of meat and potatoes at the same meal. When not repeated too often, people in good health may eat meat, or fish, and potatoes without doing any appreciable harm. Well people may eat cheese and crackers, or cheese and bread, and feel no inconvenience; but comfort and the best of health are not encouraged by such eating.

Cheese is constipating to many; hence it is best to eat with this result in mind, if possible, and be careful not to allow the bowels to become too much deranged before either foregoing the use of the cheese, or eating laxative foods. Cheese, sweet fruits—such as raisins, dates, and figs—and nuts may be eaten together. Cheese may take the place of meat in a dinner where cooked, non-starchy vegetables and salad are eaten.

Cottage cheese, such as thrifty housewives make, may be eaten with the sweet, dry fruits and a glass or two of milk, one-fourth cream; or with preserved figs or other preserved fruits, cream, and a glass or two of buttermilk. During the hot weather, cheese should be eaten with fresh fruits and whole milk.

EGGS

Eggs, like milk, form a complete food; that is, they contain more or less of each of the fundamental food elements necessary to build the body and repair waste.

Eggs and milk are the only complete food products found in the animal kingdom.

The eggs of the hen are more largely eaten as a food than are the eggs of any of the other domestic fowls.

AVERAGE COMPOSITION OF HEN EGGS

	Refuse Per Cent	Water Per Cent	Protein Per Cent	Fat Per Cent	Carbohydrates Per Cent	Ash Per Cent	Fuel Value per lb. Calor.
Whole egg as purchased..	11.2	65.5	11.9	9.30	....	0.9	635
Whole egg, edible portion..................	......	73.7	13.4	10.50	....	1.0	720
White	......	86.2	12.3	0.20	....	0.6	250
Yolk..................	......	49.5	15.7	33.30	....	1.1	1705
Whole egg boiled, edible portion...............	......	73.3	13.2	12.00	....	0.8	765

From this table it may be seen that the egg contains mainly protein and fats, in addition to water and mineral matter. The white and the yolk differ in composition. The white contains less protein than the yolk, and very little fat and ash.

The egg contains about seventy-five per cent (three-fourths) water; twelve per cent (one-eighth) fat. The yolk constitutes a little over one-third and the white a little under two-thirds. The white is about seven-eighths water and one-eighth protein, with a small amount of potassium salts. The yolk is about one-half water, one-third fat, and one-sixth protein, with more ash than the white, including relatively larger amounts of phosphorus, calcium, and iron in organic combination. The yolk is a much more concentrated food than the white, containing about seven times as much energy, as well as a larger amount of protein and salts.

Preserving Eggs.—There are several ways of preserving eggs; namely, cold storage, freezing and then cold storage, and drying.

The influence of age on cold-storage eggs is to cause the albumin to cling to the shell membranes; the air-chamber is much enlarged, and small rosette crystals form in the albumin, and larger rosette crystals in the yolk.

There is an element in eggs supposed to cause growth. At one time enthusiasm ran high; for it was thought that this element could be used to compel abnormal growth. But, like many other single ideas regarding physiology, pathology, and curing, this theory lacks the sanction of biological law. Such processes as growth are made up of many elements, psychic and physical. Nothing can ever come from experiments that look to the artificial generation of life; for there will always be a difference—a chasm—between albumin made in the laboratory and albumin evolved by nature. The chemist may imitate lecithin (the element supposed to cause growth), or isolate it from the other elements contained in the egg, but it will be lacking a subtle element that chemical laboratories will never furnish. Life is a form of energy plus, and the plus is vital continuity, if I may be permitted to coin a term for an intangible force that presides over the universe and causes the distinction between animate and inanimate. A car is run by an intangible energy passing from the generator at the power-house over wires, but this power is indeed gross compared with the subtle energy at work in the hen, causing her body to produce an egg with enough of this energy stored in it to produce a chick strong enough to stand on its feet and eat of the food common to its mother.

Phosphorus is needed in building brain, but man's body cannot supply his needs from the gross inanimate products of nature; he must get it from the phosphorized oil in the egg, or from other animal or vegetable foods compounded in nature's laboratory.

It is absurd to give those needing iron the metallic, inanimate substance of our mines, or that which is transformed by the chemist into a form said to be assimilable, but which cannot be utilized by the cells of the body in their endeavor to manufacture their successors.

The lecithin molecule contains an atom each of phosphorus and nitrogen, which is described by Hoppe-Seyler as having the composition of $C_{44}H_{90}NPO_9$, plus that subtle element which disappears in the analyst's hands.

In the egg and the human ovum the silken thread of vital continuity is so delicate that it can be destroyed very easily, and it cannot be restored. The physical agencies favoring its return must go back to nature, and go through the refining processes necessary again to invite its return.

When an egg is beaten; when vegetables and meat, in either the cooked or the uncooked state, are used as food, none of that element that individualizes can be taken in as food. Food may be of a nature to build a body that will attract more and more of this power, and it may be of such a character as to allow more and more of it to slip away—dissipate. It has been referred to in our writings about resistance and enervation. It matters not by what name we call it—this subtle element can be attracted by making a favorable environment for its manifestation, and it can be driven away when the environment is unfavorable.

Eggs are a common and popular food, and take the place of meat with many people. In potentiality the egg represents all the tissues of the body. As the immortal Kingsley puts it: "Egg is milk and hair and blood and bone." This is said of milk; but, after the embryonic life of the chick, and the babyhood of the child or young animal, these supposed ideal foods do not satisfy the de-

mands of the young animals—much less the demands of matured life.

The egg cannot be so perfect a food for the babe as for the chick; for the latter utilizes more or less of the egg-shell, while the babe discards it entirely. If, however, the lime be substitued, the egg would be an ideal food for the babe; for the whole egg, shell and all, is suited to the developing of a young animal that puts forth muscular energy. After life begins in earnest, carbohydrate foods are necessary for supplying material for heat and activity. The fetuses of the chicken and those of animals, including man, are kept warm, and do not require force or heating foods; but after they begin an independent life they need carbohydrates. The chick takes force food as soon as hatched.

Some authors declare that the lime of the shell is not utilized by the chick, but, as nature on every hand proves to us that there can be no effect without a cause, and vice versa—that function precedes structure—we cannot believe that such a friable structure as an egg-shell would be built if protection were all that was required of it. A tough membrane, such as we see in some animals not requiring the substantial framework of the chicken, would answer every purpose. The laboratory experts would do well to start with a natural fact, truth, or verity, if they would build theories that will work out in experience.

The white of the egg is pure albumin, and consists of a solution of proteid shut up in the interior of millions of cells. All animal bodies are made up of cells, and the egg is an undeveloped chick. These cell-walls are broken when the egg is beaten, and this allows the proteid to escape.

Egg albumin is said to consist of a mixture of different proteids, indicating that the egg, from a chemical standpoint, is a highly complex substance; and, like all complex foods, it is very unstable; it takes on change

very easily—decomposes in the stomach and bowels readily.

The yolk is fully as complex as the white; and, as a consequence, the egg is not so innocent a food as many suppose. It is generally recognized as being easy of digestion; and, I presume, in those who have perfect health and digestion, this is true; but the observing physician will find many people who are made from slightly uncomfortable to miserable by its use. This is especially true of those who have slow digestion; for they experience discomfort from the use of eggs cooked in any form.

Eggs are especially bad for those who have ulceration or dilation of the stomach. People with delicate digestion should not eat any except fresh eggs—eggs not more than one day old. Indeed, this rule should be followed out on all foods; for stale fruit and vegetables, when eaten, are very much inclined to cause fermentation. A lack of care in this matter is often the cause of continued ill-health.

Siebel says that a newly laid egg, placed in a vessel of brine made of two ounces of salt and one pint of water, will sink to the bottom; an egg one day old will sink below the surface, but not to the bottom; while one three days old will swim about just immersed in the liquid. If more than three days old, the egg will float on the surface, the amount of shell exposed increasing with age. If the egg is two weeks old, only a little of the shell will dip in the liquid.

Digestibility of Eggs.—Raw eggs remain in the stomach longer than soft-boiled eggs, according to Sherman. He says this is due to the fact that they are so bland that they excite neither the motor nor the secretory function. This is not a very plausible reason, and one which, if followed to its legitimate end, would imply that food, to be digestible, should irritate the stomach; and,

of course, the more it irritates, the easier it will be of digestion!

It appears more reasonable to assume that a soft-boiled egg is made easier of digestion than a raw egg because the heat causes a bursting of the capsules of the cells, allowing the contents to be acted upon by the gastric secretions at once. If this be true, then raw eggs should be thoroughly beaten before being eaten; and, when there are no countermanding objections, a little lemon juice may be added to cover the raw taste and aid digestion by furnishing acid.

Eggs act as a poison on some people. A small amount of egg creates violent symptoms, such as rash on the skin, vomiting, syncope, and coma. Sherman says: "Apparently their digestive juices act on egg in such a way as to produce poisons from it." But, inasmuch as albumin is a rank poison when it gains entrance into the blood, it is possible that in those people who suffer from the eating of eggs there may be some way for albumin to gain entrance into the circulation in other than the regular way; for instance, through stomach or intestinal ulceration, or a defect in the lacteal circulation of chymification. Eggs are a poison to those who suffer from that form of stomach derangement marked by a heavily coated tongue.

Authors say that raw eggs are best taken directly from the shell. Obviously this is a mistake, if the cell capsule resists the action of the gastric secretions, as suggested above.

Raw eggs are recommended in combination with milk, broths, or coffee. In diseases accompanied by loss of flesh and strength, large quantities of raw eggs—as many as twenty-four—are recommended in twenty-four hours. Patients who can take care of such quantities of eggs, or a like proportion of other foods, are not in a very sick state. Those who are seriously ill will grow

worse and die under such dieting! "Stuffing" is a better term for such feeding.

Some of the best authors on dietetics recommend the mixing of sherry or other wines or alcoholics with raw eggs for the sick. Most patients would be made worse by such treatment, and it is doubtful whether people in health would stay well long if given such diet. Alcoholics of all kinds have a detrimental effect on the stomach, in either health or disease. Nothing in the drink line is more disease-producing than egg-nog. Cornaro will probably be pointed out in refutation of my opposition to alcoholics—but truth remains the same.

Penzoldt experimented and found that two eggs lightly boiled had left the stomach in one and three-fourths hours; given raw, they left the stomach in two and one-fourth hours; when poached, and butter added, they left the stomach in two and one-half hours; hard-boiled, they left the stomach in three hours; as an omelet, they left the stomach in three hours.

Hard-boiled eggs, finely chopped or ground, can be digested in a normal stomach as quickly as soft-boiled eggs. Much, however, depends on the cooking. The term "hard-boiled eggs" is bad, as long as it means that eggs are to be boiled. Albumin—either in meat, eggs, or vegetables—should not be boiled.

Eggs being albumin, they should not be cooked in boiling water. Eggs are best cooked in the shell. (See "Cooking.")

There are two main schools of dietitians; namely, those who are known as vegetarians and those who are not—those who believe in all foods, vegetable and animal. The latter school is divided into those who believe in a large intake of proteid, and those who believe in a low intake. Voit heads the first class, advocating one hundred and eighteen grams of proteid. Chittenden is

at the head of the other class, recommending sixty grams of proteid, and even as low as thirty-five to forty grams.

Those who belong to the one-hundred-and-twenty-grams-of-proteid school recommend twenty eggs a day. The low-proteid school advocates from six to ten. From the standpoint of the author of this book, even the low school is much too high.

Professor Chittenden came into his knowledge of the benefit of a low-proteid diet by experimenting on himself. He had persistent rheumatism of the knee-joint, which he got rid of, along with "sick headaches" and bilious attacks, by cutting down his eating.

Graham, of the "Graham system," declared that he got rid of headaches, cold, constipation, and rheumatism by cutting down his food supply so low that his neighbors declared he would starve to death.

The advocates of a high proteid intake believe that it is well to take more than necessary—more than the system requires for building and repair—so as to have a reserve on hand in case a sickness should come requiring a reserve. The truth is, if there is a reserve, a time will come when it will have to be got rid of—sickness will come because of it, not from a lack of it. When nutrition is crowded by an oversupply of proteid, catarrh, plethora, high blood pressure, and systemic infection from absorption of decomposition in the bowels are present; and developing from this systemic infection are such diseases as appendicitis, fibroid tumor, goiter, hard arteries, cancer, etc.

Combinations.—To prevent the developing of such a train of symptoms, not more than four eggs a day, or from four to six ounces of meat, should be eaten with other foods. With meat or eggs, cooked and raw vegetables are to be eaten for dinner; then one meal a day of bread and butter. The third meal should be fruit and milk or cheese. The starch for children should be whole-

wheat bread, oatmeal, corn bread, or any of the breakfast foods; for grown people, white bread or a mixture of whole-wheat one-third and white two-thirds. This is an outline of a dietary that will furnish enough nitrogen for tissue-building, and enough heat to keep up the warmth of the body as well as force of energy.

Overeating taxes the body to get rid of the surplus; and it is this overtaxing, and the consequent full-habit, that bring on disease.

One egg is equivalent to four ounces of milk, and one and one-half ounces of fat meat.

Those who eat eggs for breakfast and experience a heavy, lazy feeling at ten to eleven o'clock in the forenoon should stop their use, or stop the use of meat at the evening dinner, and use the eggs for dinner rather than for breakfast.

MEAT AND MEAT PREPARATION

Meat forms the flesh or muscular parts of the body. It is one of the most important articles of food, and is the chief source of man's protein supply. It also contains water and fat, the proportion varying with different meats. Meat may be eaten raw or cooked. Raw meat, when well ground, is very easily digested.

Meat should not be eaten oftener than once a day as an established eating habit. It furnishes proteid, and the proteid is used for tissue-building. Therefore, unless there is much exercise to cause great need of renewal of tissue, the demand for proteid will not be so great. Many people do eat meat three times a day, but they come to grief if they eat much starch or carbohydrates with it. Much meat-eating must be accompanied with outdoor life and exercise. Men who have lived the life of hunters and trappers have told me that they had eaten large quantities of meat—in fact, lived on meat and coffee—and maintained excellent health.

I have not been able to follow up the lives of those who have boasted of living exclusively on meat, long enough to know what the outcome has been.

It is declared that the most intelligent and enterprising people are those who eat meat.

Truth on the subject of diet, as well as on many other subjects, is most elusive, and exceedingly difficult to procure unalloyed. If someone has lived largely on meat for a while, or circumstances have made it necessary to eat pork three times a day for a few years, he becomes an enthusiast, and declares that the only way to have good health is to eat plenty of meat, especially pork; that he has eaten nothing else during his lifetime.

The fanatical temperament is required to believe that a monodiet or omnivorous eating is correct. It is the same temperament that inspires the man who willingly dies for his king, or who believes in a unitary cause for diseases, or that natural law will be set aside in answer to prayer.

Hard work or plenty of exercise is a very good antidote to food poisoning; but, in spite of this fact, we are reminded all the time that athletes and farmers are not long-lived. The athlete goes down very rapidly after he stops training. Food poisoning often manifests as a cold. Exercise in the open air, and fasting, will cure quickly. The farmer should be the longest-lived of all people, but he is not. The rule is that he dies early because of overeating. He usually eats more of meat and bread than of other varieties of food.

Labor-saving machinery has prolonged the farmer's life somewhat. He does not work so hard; but his eating is too largely of meat, bread, potatoes, and coffee. Instead of preparing a perpetual garden for himself and his family, he manages to have a fairly good supply of vegetables for from two to four weeks each summer; but for the remaining eleven months in each year his cattle

and horses are better fed, for they are favored with more grass—green food—than he and his family receive.

When the farmer's horse or the city horse has been stall-fed for two or three years—given plenty of oats, corn, and hay—what becomes of him? He is fat and sleek, and said to be in excellent condition. But if he is examined carefully, an expert will find a thickening and puffing of the mucous membranes; the cellular tissue will be found more or less infiltrated; the tongue will be thick or puffed, and whiter than it should be; the gums are puffed—sometimes so thick that they reach to the level of the teeth, and occasionally lap over the teeth, making mastication painful, if not impossible. If the feet are examined, the hoofs will be found flinty and hard, and becoming distorted. Then it is that the blacksmith and veterinary begin to talk of corns, hoof-bound, dry hoof, etc.; and the blemishes on the legs are called puffs, splints, ringbones, spavin, and other names fully as meaningless, so far as cause is concerned. If the urine is examined, the specific gravity will be found rather light and the reaction too acid.

What is the matter with the horse? His system is heavily charged with the waste products of digestion, and he is aging rapidly. His so-called diseases are simply a rapid process of aging. The mineral elements in his food are being deposited throughout his body. If he could be induced to take stimulants—such as alcohol or condiments; salt, pepper, spices, pickles, chile; and take our table beverages—coffee and tea—he could be made to build gall-stone, stone in the kidney, stone in the bladder, arteriosclerosis, progressive paralysis, and other old-age diseases, equal to man.

What is needed for a cure? Turn the horse out on pasture, and nature will do the rest. Within one week after eating grass, the urine will be found loaded with

mineral, and will continue to be until the body is cleared of its deposits.

The human body accumulates mineral the same way, resulting in: corns, bunions; puffed ankles, swollen joints; stone deposits, anchylosis, all kinds of rheumatism, hardening of arteries; tumors, cancers; kidney, heart, and lung diseases; crime and insanity. This is the fearful price paid for eating, drinking, and thinking wrong. Man cannot eat grass as the horse does, but he can eat fruit and vegetable salads; and these foods eliminate equal to grass.

If stone in the gall-bladder is caused by germs, of course the proper thing to do is to cut out the stones, drain the gall-bladder, and use remedies for germs—germicides. But if the disease is caused by errors in diet, there is but one cure, and that is to correct the eating. Disintegration of stone will then take place, and it will pass out through the natural channels.

It is said by vegetarians that rheumatism is caused by eating meat. The truth is that few people eat exclusively of meat. It is doubtful if any do. All meat-eaters take more or less bread, potatoes, and other vegetables. To say that meat causes rheumatism when it is eaten with bread and potatoes is a slack way of reasoning, to say the least. To say that starchy foods eaten with meat cause rheumatism is slack reasoning. Experience leads one to believe that meat and bread eaten together are more capable of causing rheumatism than either eaten without the other.

Carbohydrates build rheumatism of the depositing kind. Arthritis and bursitis are deforming in their nature. Both belong to the nervous temperament, and develop in those predisposed to the disease when resistance is broken down. The rule is that those of the nervous temperament are more inclined to eat carbohydrate foods, such as bread and sweets, than animal foods. They

also live so intensely that they become enervated. Then, if inclined to rheumatism, they develop the arthritic or bursal varieties, which are seldom cured; for much time, patience, and perseverance are necessary; nutrition must be brought back to the normal, which takes much time and personal sacrifice. Drugs fail even to give relief to these sufferers, and it is a crime to give them; for they further depress and enervate, and indirectly add to the disease. These diseases are made worse by forced inactivity and overeating, rather than by the kind of food. However, it could be proved without much effort that animal foods cause less trouble than carbohydrates where they are taken in excess.

Inflammatory rheumatism is caused by the excessive intake of protein—meats of all kinds, eggs, milk, cheese, and food made from whole grain, beans, peas, and other proteid-carrying vegetables—made active by sugar—artificial sweets.

Excessive cold or heat, overwork, or anything that lowers resistance, adds the last straw to force an attack of rheumatism. Why stop with saying that, when the system is overcharged with the purin* bodies from the excessive intake of meat and other nitrogen-carrying foods, the patient will have rheumatism? Indeed, to do so stops short of the whole truth; for pneumonia, appendicitis, typhoid fever, and other fevers and inflammations are brought on from this cause. Any disease to which there is a predisposition, or which the local environment favors, will determine the type. Any inflammation or fever finds in this constitutional state a favorable culture-soil.

It takes inflammatory rheumatism six weeks to burn out its cause; a typhoid fever, from six to ten weeks; a

*The chemistry of purin is $C_5H_4N_4$. Add O_3 to the formula, and we have uric acid. The purin may be taken in with food, and it may be developed in the process of digesting protein.

pneumonia, from ten to twenty days; an appendicitis, from two to four weeks, if not operated upon—unless it becomes chronic.

The time given for these diseases to burn up the purins is according to authority, but not according to my opinion. If food is kept away from the patient suffering with these diseases, the fever soon subsides, and then elimination is hastened by this system, so that inflammatory rheumatism will subside in two or three weeks, or less time; typhoid fever, in from seven to fourteen days; appendicitis, in a week, if there is not suppuration; if pus forms, the patient becomes comfortable in three days, and then must wait until the abscess ruptures into the gut, which it will do in from ten days to four weeks —usually in one to three weeks; then, if the patient is fed properly for a week, there will be no sequels.

When the etiology of disease is understood, treatment is made easy and fatalities are made the lowest possible.

Reference has been made to the amount of protein food required to supply waste, which is much less than the amount consumed by most people who think they are moderate eaters.

Chittenden declares that a little over two ounces—sixty to seventy grams—of protein is enough. Meat-eaters would think that amount a starvation diet. Go among the people—those who believe in good living—and we find that a pound of meat is not thought to be too much for one meal. Most doctors will prescribe eight to sixteen times as much protein as Professor Chittenden finds necessary. Tuberculous patients especially are urged to eat large quantities of eggs, meat, and milk. Between protein-poisoning and fear (the chronic mental state of those who have lung and heart diseases), people are kept sick, and ultimately die.

The present up-to-date dietetic scheme for treating tuberculous patients is to stuff them. "By all means keep up the weight!" Between stuffing and inactivity, some of the unfortunates are kept alive for several years—especially those who can afford to live the life and pay for the medical jollying. Those who cannot, pass on. Yes, kept alive! They are scarcely permitted to move, and they are never allowed to go back to work or business.

Tuberculosis is first, last, and all the time a disease developed by chronic autotoxemia. Excessive eating of albuminoid—proteid-bearing—and carbohydrate foods develops pulmonary adenitis, which favors the development of tuberculosis in those predisposed to the disease. It does not stand to reason that a disease brought on from bad eating habits can be cured by continuing the habits or by increasing them.

The profession's remedy for tuberculosis, if applied to well people, would break them down and kill them in a very short time.

Those who do not eat meat, eat eggs, nuts, milk, cheese, dry beans and peas, and whole grain (all foods containing a large amount of protein) until they are as saturated with purins as the heaviest meat-eaters; hence, the vegetarians can, and do, develop the diseases said to belong to meat-eaters. Overindulgence in sugar, starch, and fat is often all that is necessary to develop a disease.

Holidays Are Disease Builders.—After feast-days, many who are autotoxemic are prostrated with diseases, such as gastric and bowel disorders, colds, grippe, bronchitis, pneumonia, and tuberculosis.

A box of candy is as often the last straw as a meat, fowl, or fish dinner. An oyster stew with crackers, taken after the theater, is often the final coup.

When sickness follows a fish dinner, starch—bread or crackers—has as much to do with it as the animal

food; for without the starch there would be no fermentation.

When hunger has been indulged to an oversupply of meat, the nerves are overstimulated. The first sign of this overstimulation is an increasing desire for more stimulating food and drink—an appetite is developed. One meal has not gone by long before more food is wanted. Along with an increasing desire for food come headaches, and pains in other parts of the body; tiredness on getting up of a morning begins to make its appearance, and a languidness throughout the day is felt. The growing food-poisoning causes the victim to sit down at every opportunity, and an unnatural tiredness follows work of all kinds; the mouth and tongue are more or less coated, and the taste is bad; the breath gradually grows offensive; the teeth become incrusted with tartar; the bowels become sluggish; the complexion grows muddy; the eyes, that were once bright, grow dull and yellowish; the hair loses its sheen and grows thinner; the nervous system becomes enervated, and the disposition changes from optimism to pessimism. Where much starch, fats, and sweets are combined with an oversupply of meat, the liver becomes sluggish; there may be much despondency; the pulse slows down; headaches grow more severe; rheumatism begins to manifest itself; the bowels show a tendency for retention, even if there is a movement each day; then gas accumulation becomes a source of annoyance, and is also often quite offensive; the bowel movements are much of the time foul-smelling; piles become troublesome and frequently bleed. If the movements from the bowels are watched, they will be found covered with more or less mucus. Typhlitis and appendicitis are two diseases that are imminent.

At this stage of food poisoning it may be said that there exists a pronounced autotoxemia. The exogenous purin bodies taken in with meat, coffee, tea, and choco-

late, and the endogenous—those manufactured from other foods taken into the body, those that are not classed with proteins—enervate to such a degree that the alcohol, tobacco, and drug habits are a natural consequence. Indeed, if habits of this character are not formed, acute and chronic diseases, including insanities and crime (a form of insanity), must develop and derange the mind and body, or kill both.

Whatever else food does for the body, it is first, last, and all the time a stimulant. Food in required quantities gives the body the stimulation necessary, but when used in excess of bodily requirements, it overstimulates. It is then that food becomes a drug—a poison.

So far as health is concerned, there is no difference, except in degree, between overstimulation from meat, which is albumin, and overstimulation from alcohol. The effect of both is enervating, and when enervation is pronounced, elimination is inhibited and autotoxemia follows.

What difference does it make whether we die from diabetes caused by starch poisoning, or from neuritis or delirium tremens from alcohol poisoning, or from rheumatic heart disease or apoplexy from meat poisoning?

Poison is poison. It is all a matter of degree. Meat poisoning cannot kill more surely than bread poisoning. Suppose meat creates acute inflammatory rheumatism, and starch or bread causes bursal rheumatism, and alcohol brings on gout—can there be much choice?

Meat is more stimulating than other foods. A more correct statement would be to say that meat is easier of digestion. Hence, when eaten, it influences more quickly, and, if eaten in excess, the shock of stimulation is greater than in the case of other foods. The fact that it is more concentrated and more readily absorbed accounts for the suddenness of its influence. To illustrate: Chloroform drunkenness is more rapid in coming on and in going off

than the drunkenness caused by alcohol, and because of the rapidity, or suddenness, of the influence of the chloroform, it is more detrimental in a short time than alcohol.

All agree that meat is stimulating, and, when used unwisely—eaten in too large quantities—the system is overstimulated; enervation follows; then comes autotoxemia, or a retention of waste products, of which uric acid is the most pronounced. The others are xanthine, hypoxanthine, caffein, thein, theobromin, guanin, and adonin.

These are purin bodies, and they may be oxogenous or endogenous—taken in with food, or generated within the organism. The following is the principal list of foods containing purin bodies: meat, fish, beans, asparagus, onions, mushrooms, tea, coffee, chocolate, and oatmeal. Ribs of beef contain 8 grains of purin per pound; sirloin of beef, 9 plus; steak, 14.5; liver, 17.25; thymus (sweetbreads), 0.5; tea, 1.2 grains to the pint; coffee, 1.7; the other table beverages less, down to lager-beer, which contains 0.125, and porter, 0.155 per liter.

The accumulation of these purins in the body builds headaches of all kinds: the so-called bilious headaches or migraine—a form of headache that most physicians declare cannot be cured. My experience has been different. All headaches can be cured if proper dietetic instructions are given and followed. Neuralgias of the subtler sort can all be cured without operation; but, as the fees are much more enticing—tempting—I presume that operations will continue to be the "dernier resort" with the really educated in the profession. Physicians with modern training can see in the painful nerve a little rebel that needs decapitating. Such medical men look on every organ "out of fix" as rebellious; they hold the organ itself responsible; they do not grasp the truth that every localized manifestation—localized disease—is

simply a local manifestation of a general or constitutional derangement.

If drugs shock (and all who are competent to judge know they do), how is it possible for drug-shock to cure food-shock? Indeed, drugs do not cure, but add to food poisoning, and the result is prolongation of disease; and where there is a recovery, or rather a bettering of symptoms and apparent recovery, it is when the organism is able to throw off both influences.

Then the question to settle as to the desirability of meat as a food is: Is a stimulant desirable under all circumstances? If not, then the dietitian should know when it is proper and safe to secure quick action. This opens up a large field for speculation, as well as of scientific investigation and practical experimentation—too large to do more than simply refer to a few of its phases; namely: When disease or injury has inhibited nutrition, and the patient is low from pronounced enervation, the feeding of a concentrated meat broth may overstimulate and further prostrate, or even kill. Under such circumstances a small amount of fruit or vegetable juice will be kindly received and prove life-imparting—I mean the fresh, uncooked juice.

Diseases brought on from excessive intake of meat must be cured by withholding meat. But if vegetable albumin is substituted for the animal albumin, a cure will not necessarily follow; for the vegetable albuminoid is harder to digest. Then digestive derangement will be added to the symptoms of the disease that has been set up by excessive meat-eating. A much better and shorter way out of the difficulty would be to cut down the usual amount of meat eaten to one-half, one-fourth, or even one-tenth, and then combine correctly; or go on a proteid fast of long enough duration to allow the system to free itself of waste products.

A pronounced symptom of overeating of concentrated foods, such as meat, starch, sugar, and fat, is an inability to eat fruit. When anyone declares that he cannot eat fruit without being thrown into discomfort, an investigation will show that he is pronouncedly autotoxemic.

Are Meats and Wheat All the Food Needed?—Because both meat and wheat contain the fourteen principal elements of the human body, the idea that to eat freely of either or both will supply the body with all the food needed, and that other foods are not necessary, is quite general. The continuation of this reasoning excludes fruit and raw vegetables; for why take up valuable stomach space by eating cattle food (salad and fruit)? The majority of human beings believe themselves to be fasting when eating fruit and salad. From this point of reasoning it is easy to come to the conclusion that, inasmuch as there is nothing to be gained by the eating of fruit (it being an expensive luxury, and raw vegetables being an expensive cow food), then, for economical reasons, if for no other, these should be left out of the dietary. Consequently, a habit is formed of eating too much meat, bread, potatoes, beans, and peas; if a change is desired, pudding, pie, and rich dressings are added; resulting in a disease-producing style of eating, and a world of sickness, as we see it all over the country.

Combinations.—To avoid overeating, meat should be eaten with cooked, non-starchy vegetables and a combination salad—a large dinner-plate-ful of salad. About three ounces of protein, or twelve ounces of lean meat, is supposed to be light eating; but for business men, four ounces of lean meat daily, or eight ounces every other day, with a large plate of salad, and all desired of cooked, non-starchy vegetables, with fruit for dessert, makes a simple meal and one that will satisfy a normal man. In addition to this dinner, a lunch of fruit, and a

breakfast of bread or breakfast food, furnish all the variety of foods needed.

Cheese, milk, nuts, eggs, dry beans and peas, all carry protein in large quantities, and therefore should not be eaten in the same meal with meat. If desired, they may be substituted for meat and eaten with cooked, non-starchy vegetables and salad—the two foods that always go with protein-bearing foods. Meat and vegetables should not be cooked together.

Dinners may be cooked, non-starchy vegetables, salad, and meat every other day; the alternate day, cheese (if cheese is not eaten at lunches), navy or butter beans, dry peas, nuts, or eggs, in place of meat, with cooked, non-starchy vegetables and salad.

Eating eggs and whole-wheat, rye, or corn bread in the morning; and meat, or some other food that carries a large percentage of protein, for dinner; then cheese and milk for lunch, is overeating on protein-carrying foods, and will build all the diseases peculiar to this sort of food poisoning.

Desserts.—Desserts are not to be recommended except on rare occasions. Fruit may follow a meat dinner—fruit cooked or raw, or prepared in any way, except with starch.

Puddings, when eaten at all, should constitute a meal. Lunches may consist of a small meal of pudding, pie, custard, or cake, followed with hot water or milk; in hot weather, a dish of ice-cream with any of the above-named stomach-disturbers (for that is what the usual dessert is). Ice-cream eaten daily will create stomach derangement. Berries and ice-cream make a toothsome lunch for the "good old summer time," and a satisfying dessert after a meat dinner.

People who are in good health may eat for dessert, after a dinner of meat, salad, and cooked, non-starchy vegetables, a piece of apple pie; prune-whip; gelatin

fruited; jellies, marmalades, or preserves, with cream. If the meat eaten was quite fat, cream must not be eaten.

Effects.—In times gone by, the Yankee (American) has had the reputation of being a dyspeptic. "Yankee," "dyspepsia," and "frying-pan" are a trinity of words derisively used to mean "American." But the people in the United States are learning to cook, and those restaurants that have the reputation of furnishing first-class steaks are usually crowded to the sidewalk at meal times.

McCulloch says:

> In the past ten to twenty years meat-eating has increased enormously, especially in the United States and England, owing, it is thought, to the development of cheap refrigerator processes, canning, and increased facilities of transportation. The annual per-capita consumption of meat has almost doubled during the past half-century. It is estimated in pounds as follows:

United States	147
England	100
France	72
Germany	64
Russia	50
Italy	24

With the increased consumption of meat there has been a gradual decline of sickness. It is not due to meat alone; for the decline in disease has many causes. Christian Science and other mental schools of healing; osteopathy, chiropractic, and other drugless methods of treating the sick, have gone far toward educating liberal-minded people out of the drug habit. Diet has come to stay, and the people generally know much more about the necessity of eating properly than ever before. Sanitary science has stalked a pace never set before, and average intelligence has increased many points. All of which has raised the health standard, in spite of the fetish-worship and practice of vaccination, serum immunization, unnecessary surgery, etc.

The best prevention against sickness is ideal health and a knowledge of how to preserve the health standard; not by so-called immunization, but by knowing the limit to resistance, and respecting it.

All food can be made to poison the body, and a general knowledge of how this is brought about is more necessary than a belief in vaccination.

Meat infections may be attributed to two causes: first, eating too much meat; second, eating meat that is degenerating—becoming tainted.

It is said that prevention of infection from meat and meat products depends, first, upon the health of the animal; next, upon the mode of death; and, finally, upon the methods of butchering, preserving, and handling the flesh. Careful attention to every detail is necessary; "cleanliness" is the slogan; careful inspection is necessary; thorough cooking is most important; and then a knowledge that will prevent overeating will save from sickness, and in many cases from death.

Raw meat should not be used; for tape-worm larvae are liable to be eaten, and unless the digestive secretions are up to their normal standard, the worm may hatch and further enervate the subject. People who are not up to a normal health standard should eat thoroughly cooked meat only. They should not eat cold meats, because of the change that is liable to take place in meat as soon as it cools. Only the robust should eat bread with meat. Meat and bread in combination tax digestion very severely, and in time will prove detrimental to the most robust in health.

Plethoric people—those of full habit—should stop the use of meat entirely until much improved; then use meat only once a day.

Parasites in Meat.—Parasites gain entrance to the system in food and drink. Much is made of this fact by authors of books on medical science, and the cause of

parasites taking up their abode in the body of man is dismissed with that one salient fact. But as truly as it requires more vernal signs than one bluebird to make a spring, it certainly requires more than one fact to account for the cause of any disease.

If all that is necessary to start a parasitic disease is to take the parasite, or its embryo, into the stomach with food, then all mankind would be infested; for how is it possible to eat without taking in the parasites and germs that find their natural habitat on, or in, all food that man eats? Professor Metchnikoff avoided all germs and parasites by eating only cooked food; yet he died at seventy-two years of age. Dr. Powell, of Los Angeles, made a show of eating germs, and he lived to near eighty.

Neither of these facts establishes a system. Cause is multiple.

If it is impossible to go through life without taking parasites, or their embryos, into our stomachs along with food, then why do so few people develop parasitic disease?

The same question applies to every disease that man has. If typhoid fever, pneumonia, appendicitis, et al., are caused by germs, and there are germs everywhere, and germ-carriers in every community, and germs in people who have not at any time developed the disease which the infesting germs are said to produce, then, in the name of reason, why attribute the cause of disease to germs? The answer comes: Because those who do not take the disease are immune; caused to be immune by a large toleration—resistance. But this reason is given the double cross by friends of the germ theory when they insist on vaccination, etc., to prevent the taking of disease. Reader, do not forget that if the germ and parasite theories of cause and immunization were true, the human family of today would be absolutely

immune; for the time of greatest danger from disease and death from this cause was before sanitation was known.

The causes that make disease possible, as I have stated continuously during my writing period, are any influences that lower resistance by causing enervation and its sequel, autotoxemia.

If resistance is normal—if health is normal—the body's digestive secretions are powerful enough to cause a benevolent assimilation of all parasitic and germ life that gains entrance with the food. If gluttony is practiced, digestive secretions will be given a greater work than they are able to do; then they lose their germicidal and parasiticidal power; and food that is infested with germs takes on pathological fermentation instead of physiological fermentation, and the system then begins to be poisoned by absorbed ferments and retained excretions. The latter process, however, is a conservative measure. When the normal defenses are broken down, the body meets disease by disease-producing excretions —poison is antidoted by poison; the depression brought on by ferments and ptomaines is met by the antidotal influence of retained excretions. If this warfare is extended at too great length—if the food intake is not checked by loss of appetite—then the system will be overwhelmed by retained excretions and the decomposition of the incoming food, and the victim cannot recover. How should it be treated? Surely not by forcing elimination so long as the intake of food is furnishing a poison that requires the antidotal influence of the retained excretions. Surely not by the use of antiferments or digestives; for this removes the poison on which the excretions act. Stop food, and immediately elimination begins. • Nature needs no assistance in securing the functioning of organs; simply remove the cause of functional inhibition, and the process of elimination starts with increasing speed, until all retentions are removed from the

body, including fluid accumulations in cavities and growths of all kinds.

To use eliminating drugs, and at the same time continue heavy eating, or the style of eating that makes artificial elimination necessary, is a direct interference with the conservative efforts of the body, and builds disease and early death.

If elimination is imperfect, then eliminating foods should be used to the exclusion of all others, until the body is normal.

Surely nothing more need be added in explanation of parasites and their prevention. Keep up a normal health standard and defy disease. Perhaps I may as well remark, in passing, that mental germs and parasites are to be prevented and cured in the same way.

BEEF

Food Materials (as Purchased)	Refuse, Per Ct.	Water, Per Ct.	Protein, Per Ct.	Fat, Per Ct.	Carbohydrates, Per Ct.	Ash, Per Ct.	Fuel Value per Pound
Beef, fresh:							
Chuck ribs........	16.3	52.6	15.5	15.0	....	0.8	910
Flank............	10.2	54.0	17.0	19.0	....	0.7	1105
Loin.............	13.3	52.5	16.1	17.5	....	0.9	1025
Porterhouse steak.	12.7	52.4	19.1	17.9	....	0.8	1100
Sirloin steak.......	12.8	54.0	16.5	16.1	....	0.9	975
Neck.............	27.6	45.9	14.5	11.9	....	0.7	1165
Ribs.............	20.8	43.8	13.9	21.2	....	0.7	1135
Rib rolls..........	....	63.9	19.3	16.7	....	0.9	1055
Round............	7.2	60.7	19.0	12.8	....	1.0	890
Rump............	20.7	45.0	13.8	20.2	....	0.7	1090
Shank, fore........	36.9	42.9	12.8	7.3	....	0.6	545
Shoulder and clod.	16.4	56.8	16.4	9.8	....	0.9	715
Fore quarter......	18.7	49.1	14.5	17.5	....	0.7	995
Hind quarter......	15.7	50.4	15.4	18.3	....	0.7	1045

The composition of beef is variable. It is obvious that fat beef must be quite different from lean. An ox from three to five years old supplies the best beef. Lean beef from a lean animal contains about seventy-five per cent

water and two per cent fat. The water in meat is reduced to fifty or sixty per cent when the fat is increased.

Nitrogen or protein is reduced in fat meat. The reason why pork taxes the assimilative power more than other meats is because of its greater fatness and the ease with which it is digested, compared with the fat of the sheep and ox. What I mean by taxing the digestion is that more is digested and absorbed; hence it taxes the organism in a metabolic way; in other words, there is not so much waste.

Beef, after pork, is the most popular meat. Beef is the rich, or well-to-do, man's meat. As soon as the average man's ship comes in—as soon as wages are advanced, the cottage grows into a large house, and the prosperity changes street-car riding into automobile riding—beef steak supplants pork steak. When hard times come, T-bone and loin steaks give place to round and chuck steak, and later on to pork steak.

Meat Preparations Predigested.—There are many meat preparations on the market, both solid and liquid; the object being to have a very concentrated food, and one easy of digestion. The principal virtue of all such preparations is that they are make-believes. Those to whom such foods are given require a fast oftener than feeding. The suggestion that a very nutritious food is being given proves to be remedial, while in reality the make-believe food does little more than to satisfy the mind; an equivalent amount of hot water and a little salt would do as well. The rule is that meat preparations (the drug-store foods) are given at a time when patients should not be fed—at a time when ordinary food cannot be digested. It is then that suggestive feeding—the giving of drug-store food—is a great success. Because of its very slight nutritive value, it does not interfere with elimination, but allows disease to be thrown off and recovery to take place, much as a fast would.

What is disease? Faulty elimination. When the balance is lost between building-up and elimination, and retention of excretory products is manifested by symptoms we call disease—pain or discomfort—food intake of any kind should be suspended until metabolic equilibrium is established. If fasting—which is nature's remedy—is not adopted, the patient will often become so sick that all desire for eating is lost; and it will not return until retained waste products are thrown off.

The inert preparations on the market called "foods for invalids" are under the circumstances life-saving; for they satisfy the doctor (who believes that patients must be fed to keep up their strength!), and give physiological rest to the patient while disease is being thrown off.

Beef juice has little nutritive value—only four or five per cent of protein. Its chief value, according to believers in feeding the sick, is that the meat juice stimulates the appetite. But the truth is that feeding such a so-called food encourages the doctor and patient to wait for a normal desire—encourages fasting, by make-believe feeding, until the appetite returns, which it will do as soon as elimination has rid the system of autotoxemia. To feed prevents elimination, and, as long as elimination is kept in check, appetite is nil or capricious. This has reference to acute diseases rather than to chronic diseases.

PORK

Food Materials (as Purchased)	Refuse	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Ham, fresh	10.7	48.0	13.5	25.9	....	0.8	1320
Loin chops	19.7	41.8	13.4	24.2	....	0.8	1245
Shoulder	12.4	44.9	12.0	29.8	....	0.7	1450
Tenderloin	......	66.5	18.9	13.0	....	1.0	895

Beef and pork are the staple meats. Pork is the poor man's meat. And the more he eats of it, the poorer

he must get; for as a brain food it ranks lower than other meats. It is said to carry one and one-half per cent of brain food, while beef carries five per cent. It may be said, however, that there are food tables that give pork a greater percentage of brain-building material than beef. Readers, do you know that there is as much difference between conclusions arrived at by the analysts, or food experts, as between the measurements of surveyors?

There is nothing so unreliable as tables giving the elements of food, unless it is the diagnoses of the average doctor. Why slam the doctor? Diagnosis has nothing to do with cause; hence the uncertainty of diagnosis. When naming disease is made to carry a definition of cause, there will not be so much uncertainty.

Because beef carries so much more brain-building material than pork, if this fact were generally known, I presume that pork-eating would be given up by all who could raise the price for beef, and then all would literally stuff in an endeavor to build brains. Food that builds brain ought to be valuable; but brain is not all that is necessary. A brain that cannot think may be ornamental, but it certainly is not very useful. In this connection it might be well to remark that a large brain is not necessarily of fine texture; often, indeed, coarse and brutal. Overeating will cause a sluggish state of the brain, even if the supply of brain food is all that is desired. An athlete may render his brain very inefficient by overeating.

Pork is related to other meats as anthracite is related to other kinds of coal. It is a heat-producer "par excellence," besides furnishing proteid for tissue-building.

The reason why this meat is not standard today, as it was a hundred years ago, is because the people of today live in warmer houses, live more indoors, wear more clothes, and eat more starch and sugar.

The change to warmer houses, more clothes, and sugar-eating is not so desirable, but the eating of more

beef and mutton is a favorable change. In the early days of this country, game took the place of domesticated meat. Game-eating and outdoor life came as near spelling health as any style of living vouchsafed to man in the Occident.

As the composition of the brain and nervous system is principally albumin, fat, phosphorus, and water, and nerve and brain energy depends upon the phosphorus contained in the food, and the body depends upon nitrogen for its food, it should be seen that fat animals, be they pork or beef, do not furnish the nerve and brain energy required.

Probably there is a greater proportion of lean meat in beef than there is in pork, and this accounts for a larger percentage of brain food in beef than in pork. Another reason: there is less brain food in pork than in beef because hogs are confined to smaller quarters—smaller pens—and during the hog's life it gets less exercise, and necessarily more fat-producing food. It is true that finally both animals are kept from all exercise—stall-fed—and forced into a state of fatty degeneration before being butchered for market; and, as a result, they both have less nitrogen and more fat.

As phosphates are found in the nitrogenous foods of both animals and vegetables, when food is selected for its phosphatic properties, we should not select from the carbon groups—sugar, starch, and fat—but rather the albumin, fiber, and casein of animals, and the gluten, albumin, and casein of vegetable food.

In the days of "auld lang syne" our American farmers raised their hogs in wooded pastures, where they fed upon nuts—acorns—and rooted for a living without a ring in their noses. Their meat was firm, and no doubt carried much more nitrate, hence more phosphates. Not many of our people had cultivated the sedentary, and the sugar- and starch-eating habits. Those were the days

when the hog gained its reputation as a producer of staple food. That the animal has lost its reputation is no fault of its own; modern civilization has forced it into a state of fatty degeneration—into a physical state of fat and a nervous state of enervation.

If man is to eat of devitalized food, will he not become devitalized also? He certainly will. In the southern states more pork is eaten than in the North, because pork can be cured and kept in a better state of preservation than other meats; hence it is natural for people in the warmer parts of the country to eat more of this heating food. This is not a good habit, but it has been formed, and will continue among the workers and poorer people for some time yet—until they know better.

It is common talk that the people in the South are sluggish, listless, and dull. An overheating food in a warm climate will account for much of this. People troubled in this way should give up fat entirely, including butter, reduce their consumption of starch cooked in grease, and eat more fresh fruit, salads, and whole-wheat bread.

Pork is an excellent food for cold weather; for the human organism requires four times as much food for producing heat as for making muscles—that is, four times as much fat, sugar, and starch as albumin, fibrin, gluten, and casein. Pork contains, in one pound of its fat, the equivalent of two and one-half pounds of sugar or starch; hence, less than half as much of animal food is required as of the best vegetable food. This being true, it will be seen that it is much easier to overeat on meat than on other foods.

More animal food is required in winter than in summer. In cold countries fat is provided as a heat-producer, while in hot countries sugar and starch are the heat-producers.

Because of the excess of fat, and the small percentage of albuminoid or tissue-forming food, found in pork, there has sprung up the habit of eating beans with pork. The field bean contains about twenty-four per cent of muscle-maker, while in a hundred pounds of pork there is only ten per cent of muscle-making food. If, however, only bacon or sow-belly is eaten, as is often the case in lumbering camps and mining countries, the meat is little more than fat, and unless beans were eaten also, those eating such meat would run down and be unable to work. Suppose rice should be substituted for beans? The laborer then would get only about one-fourth as much muscle-feeder and more than one-third more heating food. If whole wheat should be used in place of beans, nearly half the muscle-builder would be lost, and from ten to twelve per cent more heating food would be added.

Before the American Civil War the people living along the rivers, streams, and small creeks, and in the wooded country (the early settlers shunned the prairies), lived on wild game and little else. Corn bread was staple. They had very little wheat bread, and what they did have was disease-building, because it was so poorly made. Really lazy and shiftless people would frequently sit down to a breakfast of fat pork and white-flour biscuit. Is it necessary to say that these people were pale, anemic, and good for nothing? Because of people of this order, pork has received its bad reputation. Would these people have been any better off if they had used olive oil, butter, or peanut butter with such bread as they ate? If cooking is bad, a vegetable oil, or butter substituted for lard, will not improve it, nor make the food wholesome.

Beans or peas and pork is a food for hard workers and soldiers. It is said that the German army is provided with a concentrated powder made of pork and peas, and

all that the soldier needs in addition, to provide himself with a nourishing meal of soup, is hot water.

For sedentary people—for those who are confined to the house, office, or indoor work, and who are deprived of exercise in the open air and sunshine—pork, or pork and beans, is too hearty. I am told that this is a Sunday-morning meal with the majority of New England people. Perhaps this accounts for their Puritanism!

I have seen somewhere an estimate of the number of tons of pork and beans preached to every Sunday morning in New England while the brains of the digestive laboratories are asleep. Why do these pious people sleep? Because the brain cannot work when the body is tussling with a jag of pork and beans. There is enough brain food in this favorite Yankee breakfast to allow much thought to be given to hard theological problems, if the nerve energy it supplies was not used up in digestion.

Because of the stupefying and nerve-exhausting effects of this diet on sedentary people, many condemn the eating of pork and would have it banished as a food. Many of these anti-pork-eaters suffer the same stupefying influence from beans cooked with olive oil and doughnuts fried in vegetable oil. Few know what good cooking is, and many imagine that the harm comes from pork—pork fat. But the truth is that bad cooking, wrong combinations, and, neither last nor least, the universal habit of overeating, bring discredit on such a valuable and staple food as pork.

Is it not the hog fat that causes doughnuts to be indigestible? No! The doughnut can be made indigestible by being improperly cooked in butter, olive oil, or goose fat. When a doughnut is converted into a "sinker" by bad cooking, it is as indigestible when cooked in butter or olive oil as it is when cooked in lard. Chicken fried in butter or olive oil can be ruined, and made as indi-

gestible as when improperly fried in lard. It makes little difference whether a dog is choked to death on butter or lard; the object should be to get these fats down without killing it.

If the molded dough out of which doughnuts are to be made is dropped into piping-hot lard or any other boiling fat, and then taken out as soon as cooked, placed on a soft towel, and another towel used to take up all superfluous fat, the sweet bread, or doughnuts, will absorb very little grease. The object should be to cook the dough thoroughly, and cook it so rapidly that it will prevent the grease from striking in. When properly cooked, this food will agree with people in health; but those who are troubled with a complaining stomach should not indulge.

The same rules must be followed when cooking spring chicken. The lard must be hot enough to sear the chicken, or any meat that is to be cooked. When the chicken is thoroughly cooked, it should be taken up in a cullender with a large wire scoop, the superfluous grease should be wiped off with a towel that will absorb, and the meat placed in a warming-oven to keep hot until served.

Saratoga chips or French fried potatoes should be cooked in the same way. Everything, so far as securing a wholesome food is concerned, depends upon the dexterity of the cook. Nowhere does every motion count as in cooking. The slow-motioned individual—the one whose head never saves his heels—had better leave the cooking of such foods to the expert.

I am not recommending these starch and grease preparations, but, as there are people who will have such food, I see no reason why they should not know how to prepare, or have such foods prepared, in the best way.

I want to emphasize the fact that these foods are not indigestible because of the lard, but because of the lack

of skill in cooking. Many foods that are wholesome when properly prepared are given the black eye by a cook who has not yet graduated as an expert "pot-slinger"—dish-washer.

No fat (except cream) can be used to greater advantage in making biscuit than a high grade of lard. But in the matter of making biscuit, the same as in making doughnuts, expertness in manipulating the ingredients, and expeditiousness in getting the bread into the oven, are necessary. And then to know just how hot the oven should be, and the kind of fire required, is as necessary as to know any other detail in bread-making. It requires skill to make bread—skill of a superior order. People who can become expert cooks could become expert in almost any department in the world of work.

Pork is injurious when eaten by those who have not the digestive power to take care of it. Much also depends upon how it is cooked. Fried pork is no better nor worse than any other fried food. The harm comes in ill preparation—spoiling in cooking—in overeating, and bad combinations. If a family is not prepared to cook properly, and frying is necessary, or desired, then manipulate the cooking in the best way possible with the conveniences at hand.

Combinations.—What should be eaten with pork? Certainly not starch, fat, or sweets. To do so would overtax the digestion with heat-producing food, and this would cause a sluggish liver; the skin would become muddy; pimples and boils would be liable to develop; the tongue would coat, and the breath become offensive. Proper foods to combine with pork are: the non-starchy vegetables, cooked and dressed in the simplest way; fruit and salad or slaw; cranberry, apple, or fruit sauce of any kind; jellies, fruit butters, and marmalades; the tart fruits, both cooked and raw, being best. On account of the fatness of pork, the vegetables should be eaten

without butter or cream. A large dinner-plate of combination salad—lettuce, tomatoes, and celery, dressed with salt and lemon juice—may be eaten also. If desired, a little onion or garlic may be put in the salad. Olive oil should be left out of the salad, for the same reason that butter and cream should be left out of the cooked vegetables. Those who must have pickles, chow-chow, olives, etc., can eat them with this dinner, or any other meat dinner in which there are no starchy foods. No doubt someone will require a dessert with this dinner. He may have fresh fruit, such as sliced oranges or grapefruit, or a fruit salad, or canned fruits. No puddings, pies, or starchy desserts of any kind should be eaten with this dinner.

Meat and Starch.—Starchy foods, such as beans, bread, rice, or potatoes, should not be eaten with meat, especially with pork. Potato is the least objectionable of all starchy foods to be served with meat. When starch is eaten with meat, the meal should be very simple, consisting of pork in any form desired, and baked potatoes, with a combination salad. The salad should be prepared as recommended for the other dinner, without oil. If the dinner is confined to the few items named, and overeating is avoided, nothing but comfort and good digestion will follow this meal; but if fruits and starchy desserts, with pickles, etc., be added, look out for indigestion.

When a dinner such as the foregoing, containing potatoes, is eaten, the breakfast and lunch should be fruit. When pork, salad or fruit, and vegetables are to be eaten for dinner, the breakfast should be whole-wheat bread or corn bread, butter, and a small quantity of honey. When through eating, sip a cup or two of teakettle tea, or cereal coffee, or hot water. Lunch should be fruit—fresh, uncooked preferred.

A fine eating-apple cannot be beaten by any other

fruit, and should be eaten raw to get the best results. It is worth while knowing that in pork there is about sixty per cent solid matter, of which ten per cent is nitrogenous; or one-sixth of the solids are tissue-building, and one and one-half per cent are mineral—food for the brain—which represents one-fortieth of the solids. In apples there is about sixteen per cent solid matter; five per cent, or nearly one-third, is nitrogenous, and one per cent, or one-sixteenth, phosphate or brain-builder. Hence there is twice as much tissue-building material, and two and one-half times as much brain-building material, in apples as in pork. And those who think that eating apples or any other fruit is equivalent to not eating at all should remember that, according to tables of nourishment, there is in fruit and succulent vegetables a larger proportion of nitrogenous and phosphatic nourishment than in the more solid foods, in proportion to the amount of water.

There is in apples nearly twice the food value for muscles that there is in wheat, and, considering that the phosphates in wheat are partly insoluble, there is more than four times as much food value for brain-building in apples as there is in wheat. This estimate is not believed to be unfair, because wheat requires as much water in the process of digestion as do apples, all that is needed in the wheat being demanded and taken as drink (Bellows).

Why should not cheese be eaten with fruit at noon, when having pork for the dinner at night, and starch for breakfast? Because, if a hearty dinner is eaten in the evening, enough pork will be eaten to furnish all the proteid needed, when the breakfast—bread—is considered.

Meat, bread, and potatoes in combination is a common diet among farmers and laboring-men. And what is the result? Premature aging, much sickness, and premature death. Laboring-men and farmers present bodies that are bent and stiff before middle life. They lose their suppleness early in life; and this is due entirely to

a slowly suicidal diet. Their bodies are not only stiff, but their minds fail to develop into full efficiency, because digestion and assimilation are imperfect, due to over-indulgence in eating heavy foods, and too frequently to wrong cooking.

Phosphorus is needed to build the brain and nervous system, and, unless soluble phosphates are taken into the body with which to supply nerve energy, the body becomes stiff, sluggish, and dull. Apples eaten with pork help to supply the phosphorus in which this meat is deficient.

The common style of cooking deprives the food on most tables of the soluble salts—the tissue salts. When food is cooked in a lot of water, the soluble salts are extracted and thrown away. The good housewife, who has a community reputation of being a fine cook, washes and soaks beans overnight; then in the morning she drains off the water, and adds fresh water with which to parboil; after parboiling, the water is again drained off, and more added with which to finish cooking. Beans cooked in this way are deprived of the soluble phosphates and other salts. It must be remembered that beans belong to that class of foods that carry the base-forming elements —their potentiality is alkaline; and the soaking removes this element. Then, when beans are eaten with meat, bread, and the usual combinations, the system is deprived of the base-forming elements to such a degree that diseases of a scorbutic or scrofulous character are developed. Pork being low in the element phosphorus, and beans and other vegetables that are usually eaten with this meat having their phosphates and other salts soaked out and drained away, it is easy to see that sluggishness of mind and body must follow such eating. It is easy to see that, if the food of a given style of eating is deprived of nerve-building material, and if perfect digestion depends upon nerve energy, those who persist in eating in this way must

come to grief—they must bankrupt their nervous system, become invalids, and die early.

Even if the cooking is perfect and the food is in a prime and natural state, the eating of starch-bearing foods with meat is wrong; for starchy foods should be thoroughly masticated. To do so causes an extra secretion of saliva and gastric juice, which delays digestion. The acid of the gastric secretion delays the digestion of the starch, and the extra supply of saliva incorporated with the meat causes it to digest slowly. Both these hindrances to digestion bring about so much delay that pathological fermentation is often developed; then follow gas in the bowels, constipation, and systemic infection. From such infection, diseases on the order of lymphangitis (surgical tuberculosis), adenitis, pulmonary tuberculosis, goiter, and many other diseases, spring up.

It is not necessary that any given meal should represent a balanced bill-of-fare. I do not believe it would be necessary to have all the food required by the body represented in one meal, even if that one meal should be the only meal eaten in a day.

As most people eat three meals a day, then, when such food as pork, halibut, or herring is to be eaten at dinner, the food for breakfast and lunch should contain the oxygen, nitrates, and phosphates that are deficient in the dinner foods.

PORK SAUSAGE

Food Materials (as Purchased)	Refuse	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Pork sausage...........	......	39.8	13.0	44.2	1.1	2.2	2075

This form of meat is very palatable to many people. But it certainly taxes digestion and should not be eaten

except by those in good health; and if they would retain health, they should not eat it too frequently. If eaten for breakfast, corn or whole-wheat bread, or potatoes (baked), may be eaten with it; or leave out the starchy food and eat fresh or uncooked fruit. Follow this breakfast with a lunch of rice pudding or a light bread pudding, or a piece of pie and a glass of milk. Dinner in the evening: salad and cooked, non-starchy vegetables. Starting the day with a sausage breakfast should not occur often, and, to be safe, not much besides fruit and salad should be eaten for the other two meals. Reference is made to the ordinary sausage, which is largely fat. Sausage of any kind that carries a large amount of lean meat, such as Frankfort or pork sausage that is made from lean meat, is not to be eaten with decidedly starchy foods; hence these lean sausages should be used in dinners with cooked, non-starchy vegetables and a combination salad —never for breakfast with corn bread, whole-wheat bread, or potatoes.

Dried and Smoked Sausage—such as is frequently imported—may be eaten without harm; yet there is a chance of its causing death from ptomaine poisoning. I do not recommend any domestic or imported meats that are to be eaten raw. Deaths do occur from such food, and no doubt many times without the knowledge of anyone, on account of the obscurity of the symptoms.

Combinations.—Bacon broiled, and served with soft-boiled eggs or poached eggs, and either white-flour biscuit or rice, makes a strong breakfast—one that should not be eaten by those who do not have a high standard of health. Bacon, biscuit or toast, with fresh, uncooked fruit, is a very good breakfast for winter, but too heating for summer.

Where people are caught away from home and are compelled to take what they can get, they may indulge in this kind of eating for breakfast; but it should not be

repeated very often, as it will bring on digestive derangements—engorgement of the liver, etc.—and develop in time such diseases as come under the head of acidosis.

What harm is there in the above combination for breakfast? Bread may be served with the bacon, but not with ham and eggs, nor with bacon and eggs; for such meals put too heavy a tax on the digestion. Indeed, no breakfast, or one of fruit, is all that is needed—and it should become the custom. White-flour bread, or rice, is much easier to digest than whole-wheat bread. Those who feel heavy and dull after ten o'clock each forenoon should not eat eggs or meat for breakfast.

Bacon, being almost exclusively fat, may be used where butter would be used. It should not be recognized as a proteid food; hence there is no reason why it cannot be eaten with any kind of starch—bread or food made from grain.

Pig's Feet, Head-Cheese, and Pickled Pork.—These may be eaten in about the combinations that have been recommended for other meat meals.

Pork and Kraut.—Cook the meat and kraut separately, and eat all desired; but it is better not to mix bread with this meal. A person of strong digestion and good health may have roast or stewed pork, kraut, and corn bread—the Johnny-cake variety. This is strong food and should not be eaten often—not even by those following an active life out in the open air.

VEAL

Food Materials (as Purchased)	Refuse	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Breast	21.3	52.0	15.4	11.0	....	0.8	745
Leg	14.2	60.1	15.5	7.9	....	0.9	625
Leg cutlets	3.4	68.3	20.1	7.5	....	1.0	695
Fore quarter	24.5	54.2	15.1	6.0	....	0.7	535
Hind quarter, without tallow	20.7	56.2	16.2	6.6	....	0.8	580

"Bob Veal."—This is an immature meat from calves less than two or three weeks old. This meat is not recommended.

Veal should be from a calf at least a year old. When it is, it is fit as a food. "Bob veal" is indigestible, and entirely unfit for people who have stomach derangement.

Veal from an animal sufficiently matured is tender, digestible, and, when cooked well, is a meat that is pleasant to eat. Its flavor is unlike that of beef; it contains more gelatin.

MUTTON

Food Materials (as Purchased)	Refuse	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Flank	9.9	39.0	13.8	36.9	....	0.6	1770
Leg, hind	18.4	51.2	15.1	14.7	....	0.8	890
Loin, chops	16.0	42.0	13.5	28.3	....	0.7	1415
Fore quarter	21.2	41.6	12.3	24.5	....	0.7	1235
Hind quarter, without tallow	17.2	45.4	13.8	23.2	....	0.7	1210

The English mutton chops are world-famous. Americans are fast getting on to the proper way of preparing a mutton chop.

Mutton is considered by English writers to be more digestible than beef—probably because in England the

average mutton is more tender than that obtained in the United States. The English beef, however, is inferior to that raised in this country. The fiber of mutton is finer, and it contains more fat, than beef. Mutton fat contains a larger proportion of glycerids, or stearic acid, which makes it more solid and less digestible than the fat of beef.

LAMB

Food Materials (as Purchased)	Refuse	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Breast	19.1	45.5	15.4	19.1	....	0.8	1075
Leg, hind	17.4	52.9	15.9	13.6	....	0.9	860

Lamb, when of the right age and tenderness, is as digestible as beef or mutton, but it contains entirely too much fat.

Combinations.—A meal of lamb or mutton should consist of the meat, green peas (canned if fresh cannot be had), and any other cooked, non-starchy vegetable desired; also a combination salad of lettuce (fine head lettuce when possible), fresh tomatoes (canned when fresh cannot be had), and celery or cucumbers—the latter vegetable in the summer time. If desired, a small amount of onion may be used for flavoring. Dress with salt, olive oil, and lemon juice. If prime salad material cannot be had, then grapefruit, without sugar, should be eaten instead. If grapefruit cannot be had, then orange and lemon, or orange and apple, salad.

Prepare and slice the oranges; then add enough lemon juice to give the fruit salad the desired acidity. Salads should be eaten with the meat. Tart jellies or fruit sauces may be used with meat. People in good health may have pickles, and they may use apple vinegar on their vegetable salad. Positively no decidedly starchy

food should be eaten with such a meal as suggested above —no bread, potatoes, rice, dry beans or peas; no puddings containing starch.

Desserts should be: prune-whip, fruit, or fruit gelatin.

POULTRY

Food Materials (as Purchased)	Refuse	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Chicken, broilers	41.6	43.7	12.8	1.4	....	0.7	305
Fowls	25.9	27.1	13.7	12.3	....	0.7	765
Goose	17.6	38.5	13.4	29.8	....	0.7	1475
Turkey	22.7	42.4	16.1	18.4	....	0.8	1060

Chicken is one of the most digestible of meats when properly served.

Danger of Ptomaine Poisoning.—On account of the selfish, commercialized spirit of this age, it is almost impossible to avoid being poisoned one or more times every year by unfit poultry.

When poultry is bought alive in the open market, there is no way of knowing whether or not is has served a life sentence in some poultry penitentiary; neither is there any way of knowing, if dead and dressed, how long it has been confined in purgatory before it has been brought out as a candidate for benevolent assimilation—before its human or other reincarnation.

If beeves, hogs, and sheep were dressed as poultry is dressed, or rather not dressed—namely, placed in cold storage with entrails intact—there would be so much poisoning that all people would turn against eating meat.

Poultry is kept for weeks, months, and even years, in cold storage with entrails undisturbed; and we are told by poultry butchers, indorsed by the pure-food laws, that this style of dressing is correct. If it is, why not prepare all carcasses in the same way?

Why did not the Egyptians adopt this easy way of embalming?

The ancient method was to remove the intestines and brains, and fill the cavities with a mixture of balsamic herbs, myrrh, etc. The arteries and other vessels were injected with balsams. This method of securing immortality was known six thousand years ago; yet we moderns cannot embalm our food, and insure that it will not poison us, after a week or month of preservation.

It is said that the Egyptians were so successful in this art that, after two or three thousand years, the soles of the feet were still elastic and soft to the touch.

The people should boycott the trade; they should refuse to buy undrawn fowls—refuse to buy cold-storage fowls that have been dressed in this way.

Up to the time the above was written it had been our misfortune to know of only a nasty, sloppy (ice-and-water) manner of caring for poultry; but we are happy to say that there is a correct way. The following was read at one of our clinics by Miss Seymoure, of Topeka, Kansas, who is one of the partners in a large plant for taking care of poultry:

Dr. Tilden, you have not seen the best cold-storage poultry. Allow me to call your attention to first-class work in this line, and I know you will change your mind about all cold storage being bad.

There is a large supply of good poultry delivered to the consumer, both drawn and undrawn.

Poultry, when drawn, should be delivered to the consumer promptly, for the reason that after twenty-four hours or more it begins to mold on the inside; for, with only one opening, there is no circulation of air.

It is a well-known fact that poultry is dressed and handled by a large number under all kinds of conditions.

There are innumerable packers, and a large number of them without the facilities for handling properly. They have no equipment or cooling-rooms. These concerns usually scald their poultry, cool it in ice-water, and ship it packed in ice.

The fact is well known, and backed by government investigation, that scalded poultry (and, I am sorry to say, the kind which furnishes the greater part of Denver trade) deteriorates very rapidly. The reason for this is that the tissue is destroyed through scalding, decomposition sets in much more quickly, and it reaches the point of unwholesomeness in a much shorter period than when dry-picked, dry-cooled, etc.

Just imagine a bird scalded, cooled in water, and packed in ice; drawn by people who are not very careful in doing the work, and very liable to break the intestine, thus allowing the fecal matter to come in contact with the flesh of the bird, and allowed to remain there some time before being delivered in Denver—and you can see just what might happen to that consumer. As you say, Dr. Tilden, it would be a flirtation with sickness and death to eat such a bird.

I will now try to tell you how poultry is handled by poultry-packers with well-equipped plants, and endeavor to prove to you why their products have the reputation of being superior to others.

At such plants, poultry is kept off food for about twenty-four hours before being killed. It is then dry-picked, and thereafter dry-cooled at a temperature of about thirty-five degrees Fahrenheit for twenty-four hours before it is packed in boxes properly graded as to size, quality, and kind, each bird being wrapped in parchment paper and packed one dozen to the box.

The fowls are then either shipped at once in iced and salted refrigerator cars, or placed in storage at a temperature of five degrees below zero, where they become frozen solid in about forty-eight hours. And after six months in storage, I will wager that even Dr. Tilden would be compelled to admit that they are better as food than those described above, which furnish so large a part of Denver trade—I mean those scalded, shipped, and delivered to the consumer within seven days.

The whole problem is one of handling properly, with the proper equipment; and this applies to all food products.

The United States Department of Agriculture has in the last few years made all kinds of investigations with poultry products, in order to ascertain through experiments the true facts in regard to both drawn and undrawn poultry. They have packed and frozen both kinds, and subjected them to exactly the same conditions as to sending by express or freight shipment, with or without refrigeration; and they have found

in every instance that the undrawn has arrived in more fit condition for food than the drawn, thus proving that the drawing of poultry causes it to deteriorate more rapidly.

The entrails are incased in a practically bacteria-proof sac, and if that sac is left undisturbed, and the poultry properly handled, allowing all animal heat to chill out before being wrapped and packed, the keeping qualities are far better than when the bird is drawn and that sac broken.

It has also been proved that the drawn poultry, even when frozen hard, will not hold the full flavor that undrawn poultry does—the cavity becoming moldy when drawn.

The government has made such thorough investigation along this line, employing the best talent from all parts of the country, and results have been so evident, that several states which had previously passed laws prohibiting the sale of undrawn poultry have repealed those laws.

In making these tests, the government has used products from plants that are properly equipped and have kept their standard for superiority by meeting every requirement necessary to keep up the reputation gained. I think I have now shown that the superior product is the result of proper handling, together with the proper equipment.

Canned Meats.—The canning of meat has become so extensive that those who are wise will not order chicken, turkey, veal cutlets, and many other articles of food at restaurants or on dining-cars. There is not much choice between the sloppy cold-storage fowl and the canned fowl. Both are too often questionable eating, and those who indulge are flirting with sickness and death. The pure-food laws are for the protection of the people against unscrupulous food manufacturers and dealers, but it is difficult to watch the commercial spirit when it is bent on profit.

Steak is about the only meat that can be ordered on the dining-cars these days, with a reasonable hope that the meat will not come out of a can.

The turkey ordered under such circumstances is an embalmed product, of a much more recent age than the Egyptian mummies; which, it must be acknowledged,

is a questionable compliment to the turkey, from a dietary standpoint, since the Egyptian product has outlived all septic change, whereas the modern embalming methods do not insure against the poison that must develop some time in all meat, canned or kept in storage—undressed. Now that correctly dressed poultry may be had, the people should demand it.

Spring Chicken, or Broilers.—This is a favorite meat. An expert housewife can fry chicken to tempt even a jaded appetite. Fried-chicken dinners are well known and popular, but often too stimulating. The simple cooking of chicken is best. The only reason why people continue to mix starches, meats, fats, and acids indiscriminately in cooking and eating is because the mixtures do not kill instantly, as do well-directed Gatling guns. The average human mind cannot associate thunder with lightning, if the flash and the noise are too far apart. The child-mind must see effect follow cause very soon, or it fails to associate the two.

When thirst follows a meal, it will not be recognized as coming from irritation of the stomach from overstimulation, from too much rich dressing, condiments, etc. When the thirst has been satisfied with cold water two or three times, the acid stomach that follows will not be associated with, or recognized as the result of, mixing meats, acids, and starches together, and then preventing their digestion by chilling the stomach with frequent drinks of cold water. The headache that follows the acid stomach, the thirst, the indigestion, and the acidity, will not be associated with the hodgepodge mixture eaten at the meal. The gastric ulcer or cancer that develops as a result of ten, twenty, or thirty years of such eating habits will never be associated, in the victim's mind, with the legitimate working-out of the law of cause and effect from his wrong eating.

Most minds can trace cause to effect when the operations are as pronounced as being killed by a gun, automobile, a dose of carbolic acid, opium, morphine, or falling from an aeroplane; but the subtle effects of coffee, tea, starch, sweets, and acids; the use of tobacco or alcohol; overeating or overstimulation of the emotions; the cultivation of jealousy, anger, envy, and spite, are not considered or thought of as so many causes of sickness which, if not removed, will continue to build disease until the victim is killed. Doctors with long titles give drugs and perform surgical operations in an endeavor to get rid of diseases caused by the continuous action of the above-named unrecognized causes.

Enlarged tonsils, as an example, are caused by an acid stomach, and the acid stomach is kept in existence by eating improperly prepared and mixed foods. But this little fact, that can be proved any day, will not succeed in gaining entrance to the mental dome carapaced by too many titles.

Meat should not be eaten with starch. The least offensive of such mixtures is that of meat and potatoes.

Should meat and starch never be eaten at the same meal?

Fanaticism should be avoided. A cause is never benefited by unreasonable advocates. It is everyone's duty to have the courage of his convictions; but it is not courageous—indeed, it is ill-bred—to sit down at a friend's table and deliver a homily on proper food combinations, and critically select and refuse, causing the host embarrassment.

Eat what is offered, and think nothing about it, unless sick or uncomfortable; then do not eat. No one should eat when sick—no, not to please anyone.

The difference between small minds and large minds will be seen in the manner of adopting suggestions. The small mind will not eat starch and meat under any cir-

cumstances. If invited to eat with a friend, and the friend has nothing besides meat and bread, or meat and potatoes, the baby-mind—the small, fanatical mind—will ruin the visit, and cause the friend to feel humiliated and chagrined, by delivering a homily on the evils of eating bread and meat together. The fact that the friend eats, and apparently thrives on, meat and bread makes no difference with the one-idea fanatic—no, indeed! Such eating is fraught with dire consequences, and he would not think of eating such a mixture any more than he would take poison. The fanatic cannot realize that there is a great difference between eating improperly occasionally and eating wrongly all the time. An occasional drink does not make a drunkard. An occasional indigestion in a child does not build tonsilitis. Errors of body and mind must be practiced daily to become disease-building. Reading occasionally will not educate. Practicing on a violin occasionally does not build a skilled player; it takes the labor of six or ten hours a day to build a virtuoso.

There is a good way to live and there is a best way to live. If one would get the best—bring out the best mental and physical tones of mind and body—he must live in such a way as to bring the best development. It is all a question of efficiency. Do you want the best? Then take only the best. There are a great variety of minds and bodies—a great many degrees of attainment—in that vast space existing between no development and the highest development. Our bodies are made from the food we eat and the thoughts we think.

GAME

The meat of young pigeons is especially digestible; that of ducks and geese contains too much fat. The flesh of game is easily digested. When young, rabbit meat is quite digestible, but it is usually omitted from diet lists.

ANIMAL VISCERA

COMPOSITION OF ANIMAL VISCERA

	Water	Nitrogenous Matter	Fat	Carbohydrates	Ash
Liver (sheep)	61.2	23.1	9.0	5.0	1.70
Heart (sheep)	69.5	17.0	12.6	....	0.90
Sweetbreads	70.9	16.8	12.1	....	1.60
Tripe	74.6	16.4	18.5	....	0.50
Tongue (ox), fresh	63.8	17.1	18.1	....	1.00
Brain	80.6	8.8	9.3	....	1.10

Animal viscera are not so nutritious, although some of them are quite as digestible, as most meat. Tripe, liver, kidney, and brains are eaten very extensively. The heart is tough, indigestible, and but seldom eaten. The blood of the pig has been made into a form of pudding and is relished by some. Sweetbreads—either the pancreas or the thymus gland of the calf—are easily digested.

VENISON

Venison is kept moist when cooked in a jacket. All meats have a better flavor when cooked in this manner. Venison, when from a young animal, is tender. This meat is considered difficult of digestion. Because of its highly stimulating action, it is not the meat for dyspeptics and those with complaining stomachs.

Wild meats generally are thought to be more difficult of digestion. No doubt all wild meat is more stimulating, because of the greater health and activity of undomesticated animals. The breast of the prairie chicken and that of the domestic hen represent the extremes of these two types. The breast meat of the wild chicken is very dark and very rich in nutritive properties, while that of the domestic fowl is white and possessed of little real nutritive value. The dark meat is nutritive in keep-

ing with the color—the darker, the richer in food value. The round steak is ten to twenty per cent more nutritious than the loin. Those who think they are unfortunate in being compelled to buy cheap cuts of meat are really getting the best of the bargain.

FISH

Fish vary greatly in their nutritive and digestive properties. The flounder, bass, and cod, as also the oyster, are much easier of digestion than fish containing more fat, like the Spanish mackerel, herring, eel, butterfish, and salmon. White-fleshed fish contain little fat.

Fish out of season lose flavor and are not so nutritious. Just before spawning they are most valuable as a food; after this season they are thin and not fit for food.

Fish take on decomposition rapidly, hence should be eaten in as fresh a state as possible.

Fish are preserved in several ways. Canning is one of the popular ways. Drying, smoking, pickling, and salting are practiced on a large scale.

There are several varieties of fish that are poisonous. They are found mostly in tropical waters.

Fish is about the sole animal food of certain people, called ichthyophagists. The Latin and Saxon races consume a relatively small amount of fish, compared with the people of the north of Europe and Asia. The Chinese and Japanese eat very little butcher's meat. Fish with rice, and sometimes a little pork and poultry, make up the basis of their food supply.

The flesh of fish is less nutritive than that of land animals. It is not stimulating—has less strength-building power—and is not eaten with the same relish as other animal foods. Even those who believe themselves fond of fish do not eat it much oftener than once a week when situated where this food can be procured fresh every day. It is said to be aphrodisiac; which would indicate that,

as a food, it supplies nerve and brain energy of a character favoring reproduction. If this can be shown to be true, a fish diet might be recommended to those races that are dying out—possibly a diet that will antidote race-suicide. Certainly the nations that consume the greatest amount of fish propagate more rapidly. But, of course, there are other causative factors.

It is recorded in medical literature that the eating of fish causes nettle-rash and eczema, and that fish is not satisfactory as a food when used by rheumatic and gouty subjects, or by those suffering from kidney or bladder affections. The reason for the ill effects charged to the eating of fish is that fish is always eaten with bread, rice, or potatoes, and the real cause is the combination rather than the fish.

Combinations.—With the exception of eel and salmon, and a few other fat fish, this flesh is easier to digest than the ordinary meats and fowl of our markets. It should not be eaten with starch, but as I recommend for meats; namely, with cooked, non-starchy vegetables and salad; or fish and fruit, leaving out sugar. A very good reason for not eating fish, bread, potatoes, butter, oil, and sugar together, is that they are all carbonaceous, and, when eaten in too great quantities, create either lung or liver disease, or both.

Will eating fish and starch kill instanter? The most stupid can answer: No, it will not! The harm coming from such eating must be looked for in intellectuality, race changes, and in so-called climatic diseases.

If one country is more stupid than another, or more psychic, the cause must be looked for in that country's diet, rather than in its climate. However, climate is a factor, and should not be left out of the calculation. Only the philosophic mind can deal with questions that are epoch-making. The only way to learn of the racial influence of food is to examine the peoples and note the

anatomical and physiological differences between those countries whose people eat a different diet.

Fish fat is not so easy to digest as the fat from other animals; hence, when possible to procure fish, always select a variety that is not fat, and eat only vegetables or fruit with it. If the fish is fat—of the mackerel or salmon variety—do not use butter as a dressing. Much depends upon the cooking. If cooked properly, practically no dressing beyond a little salt and lemon is required.

The accompanying tables are by Langworthy.

Those who live near the water will find this table convenient for reference in selecting fish food:

COMPOSITION OF FISH

Kind of Food Material	Refuse (Bone, Skin, etc.)	Salt	Water	Protein	Fat	Carbohydrates	Mineral Matter	Total Nutrients	Fuel Value per Pound
Fresh fish:									
Bass, large-mouthed black, dressed....	46.7	....	41.9	10.3	0.5	......	0.6	11.4	215
Bluefish, dressed....	48.6	....	40.3	9.8	0.6	......	0.7	11.1	205
Carp (European analysis)...........	37.1	....	48.4	12.9	0.7	......	0.9	14.5	270
Cod, dressed.......	29.9	....	58.5	10.6	0.2	......	0.8	11.6	205
Eel, salt-water, dressed..........	20.2	....	57.2	14.6	7.2	......	0.8	22.6	575
Flounder, common, dressed..........	57.0	....	35.8	6.3	0.3	......	0.6	7.2	130
Haddock, dressed...	51.0	....	40.0	8.2	0.2	......	0.6	9.0	160
Halibut, dressed....	17.7	....	61.9	15.1	4.4	......	0.9	20.4	465
Herring, whole.....	46.0	....	37.3	10.0	5.9	......	0.8	16.7	435
Mackerel, dressed..	40.7	....	43.7	11.4	3.5	......	0.7	15.6	360
Perch, white, dressed	54.6	....	34.4	8.7	1.8	......	0.5	11.0	235
Pickerel, whole.....	47.1	....	42.2	9.8	0.2	......	0.7	10.7	190
Pike, dressed.......	30.5	....	55.4	13.0	0.4	......	0.7	14.1	260
Red snapper, dressed	48.9	....	40.3	9.6	0.6	......	0.6	10.8	205
Salmon, Maine, dressed..........	23.8	....	51.2	14.6	9.5	......	0.9	25.0	675
Shad, dressed.......	43.9	....	39.6	10.3	5.4	......	0.8	16.5	420
Smelt, whole.......	41.9	....	46.1	10.0	1.0	......	1.0	12.0	230
Sturgeon, dressed...	14.4	....	67.4	15.4	1.6	......	1.2	18.2	355
Trout, brook, dressed	37.9	....	48.4	11.7	1.3	......	0.7	13.7	275
Trout, lake, dressed.	35.2	....	45.0	12.4	6.6	......	0.8	19.8	510

OYSTERS

COMPOSITION OF MOLLUSKS, CRUSTACEANS, ETC.

Kind of Food Material	Refuse (Bone, Skin, etc.) Per Ct.	Salt, Per Ct.	Water, Per Ct.	Protein, Per Ct.	Fat, Per Ct.	Carbohydrates, Per Ct.	Mineral Matter, Per Ct.	Total Nutrients, Per Ct.	Fuel Value per lb., Calor.
Mollusks—									
Oysters, solid......	......	.....	88.3	6.1	1.4	3.3	0.9	11.7	235
Long clams, in shell	43.6	.....	48.4	4.8	0.6	1.1	1.5	8.0	135
Crustaceans—									
Lobster, in shell...	62.1	.....	31.1	5.5	0.7	......	0.6	6.8	130
Crab, in shell.....	55.8	.....	34.1	7.3	0.9	0.5	1.4	10.1	185
Shrimp, canned...	......	.....	70.8	25.4	1.0	0.2	2.6	29.2	520
Terrapin, turtle—									
Terrapin, in shell..	79.0	.....	15.6	4.5	0.7	......	0.2	5.4	115
Green turtle, in shell............	76.0	.....	19.1	4.5	0.1	......	0.3	4.9	90
Frogs' legs..........	32.0	.....	57.0	10.2	0.1	......	0.7	11.0	210

Oysters are in season from September to May.

They should be as fresh as possible. Many people have been poisoned by eating oysters that have been on the market too long. The albumin of oysters can be made hard and unfit to eat by wrong cooking. Oysters should be used in the same combinations as meat. One of the worst combinations for building trouble is crackers with oyster stew, or scalloped oysters which are cooked with crackers.

OBJECTIONS TO MEAT-EATING

Micro-organisms are said to find a hostage in the flesh of animals, and, if not killed by cooking, they will find lodgment in the human body and set up such diseases as trichinosis, tape-worm, etc. It is reasonable to believe that when man's resistance is normal his digestive secretions are sufficient protection against germs and parasites. The digestive secretion is quite powerful enough to kill and digest all life that is liable to find its way into

the stomach. However, it is well to have meat well and properly cooked, if for no other reason than for the sake of easy digestion.

Perhaps the most-urged objections to meat-eating is that it carries uric acid into the body—that meat is a food that abounds in uric acid; that the acid accumulates when the animal fails to take into its system enough oxygen to oxidize the acid. It must not be forgotten that man is an animal and is subject to the same laws of metabolism that obtain in other animals, and that he builds uric acid in his system without the aid of uric-acid-bearing foods. Indeed, any food combination that invites fermentation builds acid. Any act, or style of living, that enervates renders elimination imperfect, and, of course, causes an accumulation of waste products; and the more waste products accumulated, the more imperfect are digestion and assimilation—metabolism.

Uric acid is said to create rheumatism, gout, and other diseases. It certainly takes a wise person to discover which article, out of many items of food and drink, is at fault in causing an accumulation of uric acid or any other waste product.

When it is taken into consideration that uric acid in the system means imperfect metabolism, and that vegetarian animals build it while eating a uric-acid-free food, it is not well to dogmatize regarding the particular kinds of food that build it, when, indeed, all foods do, if circumstances favor. Those who eat much meat under certain environments fail to produce uric-acid accumulation and uric-acid poisoning. For example: The hunters and trappers of the early days of this country lived largely on meat—at times exclusively on meat—and that, too, without evil consequences.

It has been proved that people who live out of doors, in the sunshine and fresh air, and get all the exercise necessary, do not have so-called uric-acid diseases. Obvi-

ously, then, such diseases belong to the habitues of hot houses, a great variety of food, and much clothing. I have been teaching for years that any influence which breaks down, or uses up, nerve energy causes enervation; and, when the body is enervated, elimination is interfered with—in fact, inhibited. This causes autotoxemia—retention not only of uric acid, but of all the water products—and this becomes the basal cause of all diseases.

Meat eaten with bread, rice, or other starches invites fermentation. The lower the resistance, the greater the tendency to fermentation; the more fermentation, the more acid developed; and the more acid developed, the more the normal alkalinity of the blood and other fluids of the body is reduced.

When the system becomes acid, or when the alkalinity is reduced, such diseases as rheumatism and gout develop. It is believed that red meat is especially bad for those suffering from rheumatism; but this is not true. Excessive bread- or starch-eating, much sugar- or candy-eating, or alcohol-drinking, will build more rheumatism than red, white, or any other meat.

One of the most foolish and senseless medical customs is that of prescribing white meat, because it is supposed to be easier of digestion, when the truth is just the reverse.

The prescribing of white meat is a bad habit, the same as thousands of other medical habits that were started a long time ago by medical men who are now dead, and whose ideas are dead and should have been interred with their bones.

Pork has had to stand for the many ills of man, lo! these many years. In the good old days, scrofula, all skin and mucous-membrane diseases, sore and amber-purging eyes—indeed, all diseases not easily accounted for—were said to be caused by pork. But now, thanks to enterprising modern medical science, the honors for

creating all the rottenness of the human race have been snatched from his hogship, the swine, and given to germs. Syphilis and tuberculosis—or the tubercle bacillus (the alleged cause of tuberculosis) and treponema pallida (formerly known as the spirocheta pallida, the much-alleged cause of syphilis)—carry about all honors of being the cause of man's suffering. Honors are divided between these two principal germs, and the hog is exonerated.

How are we to know whether present medical opinion is worth more than that of the past?

Now that his hogship has proved an alibi—proved that he was not present when decomposition was going on in the past generations of man—he certainly has a right to demand respectful treatment. And inasmuch as the entire medical profession declares that the blood diseases formerly ascribed to pork are caused by germs, it appears to the writer that anyone knowing this would surely not be rash enough to render himself liable to prosecution for libel by bringing forward any of those old, defunct stories about disease caused by hog meat.

Pork has been compelled to stand for blood derangements caused by vaccination, mercurial poisoning, and much of the sick-habit built for patients by doctors. But for every charge of disease made against this meat in the past a new cause has sprung up, until now almost every charge against the hog has been cleared away, except trichinosis—and this disease is negligible, except when the meat is eaten raw.

Notwithstanding that the hog has been exonerated of most charges of disease-building, I shall advise readers to reserve their pork-eating until cold weather, except bacon, which may be eaten any time of the year, but in great moderation. Bacon is little else than a hydrocarbon—oil; simply a heating food.

When digestion is fair and there is a feeling of coldness—inability to get warm and stay warm—bacon or fresh pork is indicated. When there is a driving desire for sugar or candy in cold weather, a meal or two of pork ribs stewed tender, and a side dish of kraut or salad, or both, with cooked, non-starchy vegetables, preceded by a breakfast of whole-wheat bread or corn bread, will give the system all the heating and tissue-making food required. Then the third meal should be fruit. The fruit and salad will stimulate all the elimination necessary.

Those who persist in overeating can be made sick by the most skilfully selected foods. Nuts may cause a rheumatic subject as great a loss of time and as much suffering as any red meat. Good yeast bread, butter, and sugar or candy, may make the rheumatic subject as miserable as any line of eating. Food does not enter the system (I do not mean stomach, for food in the stomach is still on the outside of the body) as pork, beef, bread, cheese, etc., but as elements after stomach and bowel analysis.

CHAPTER IV

VEGETABLE FOODS

IN SPEAKING of vegetable foods, it should be remembered that such foods as dry beans and peas, wheat, rice, nuts, etc., are included, as well as the green vegetables. Vegetable foods differ from animal foods especially in that they contain a large proportion of starch and sugar, and a comparatively small amount of protein.

The following table shows the difference between vegetable and animal foods in this regard:

	Nitrogenous Constituents, Per Cent	Fat, Per Cent	Carbohydrates, Per Cent	Salts, Per Cent
Fat beef	51.4	45.6	....	3.0
Lean beef	89.4	5.5	....	5.1
Pea flour	27.3	0.8	68.9	3.0
Wheat	16.6	0.9	81.9	0.6
Rice	7.7	0.4	91.2	0.7

Vegetables do, however, contain a certain amount of proteins and fats. Some are rich in proteins, such as dry beans and peas, and nuts contain a great deal of fat.

Carbohydrates in Vegetables.—These are starches and sugars. Starch is found in all plants. The starch molecules in vegetables are held together by a cellular frame.

Proteins in Vegetables.—Among the various proteins in vegetables is gluten, as found especially in flour, beans, and peas. Vegetable protein is found in vegetable juices.

Fats in Vegetables.—Fats found in vegetables are usually in the form of oil. Vegetables contain a consid-

erable amount of water and salt. Water amounts to from seventy to ninety per cent, and sometimes even more, in fresh vegetables. The mineral constituents are the salts of potash, soda, lime, magnesia, and others. The most important is that of potash; for it helps maintain the alkalinity of the fluids of the body.

CLASSIFICATION OF VEGETABLE FOODS

1. Cereals
2. Legumes
3. Roots and tubers
4. Green vegetables
5. Fruits
6. Nuts
7. Fungi
8. Lichens

Non-starchy Vegetables.—Beets, turnips, carrots, parsnips, summer squash, cabbage, cauliflower, Brussels sprouts, green corn, green peas, string-beans, asparagus, onions, egg-plant, salsify, okra, kohlrabi, endive, lettuce, tomatoes, cucumbers, celery, chard, spinach, dandelion, and all plants used as greens.

The use of the word "non-starchy" is purely arbitrary; for there is starch in all vegetables, but it exists in relatively small proportions in the so-called non-starchy vegetables.

Decidedly Starchy Foods.—Every preparation made from the grains—wheat, rye, oats, barley, corn, rice—also the Irish and sweet potato, dry beans and peas, tapioca, sago, peanuts, chestnuts, bananas, Hubbard squash, and pumpkin. The last three items listed have a decided tendency to ferment. Those who are troubled with souring of the stomach should not eat them.

CEREALS

Of this class of foods, those in daily use are wheat, corn, rye, oats, barley, rice, and buckwheat. They are usually eaten after being ground into flour or meal. Flour is usually made from wheat and rye. Corn and oats are

usually ground into meal. A great deal of corn is eaten in the form of hominy.

	Water, Per Ct.	Protein, Per Ct.	Fat, Per Ct.	Carbohydrates		Ash, Per Ct.	Fuel Value Per lb.
				Starch, etc., Per Ct.	Crude Fiber, Per Ct.		
Barley........	10.9	12.4	1.8	69.8	2.7	2.4	....
Buckwheat ...	12.6	10.0	2.2	64.5	8.7	2.0	....
Corn (maize).	9.3	9.9	2.8	74.9	1.4	1.5	....
Kaffir corn....	16.8	6.6	3.8	69.5	1.1	2.2	....
Oats..........	11.0	11.8	5.0	59.7	9.5	3.0	....
Rice..........	12.4	7.4	0.4	79.2	0.2	0.4	....
Rye..........	11.6	10.6	1.7	72.0	1.7	1.9	....
Wheat........	10.4	12.5	2.2	71.2	1.8	1.9	1635
Oatmeal......	7.3	16.1	....	67.5	....	....	1811
Boiled oatmeal	84.5	2.8	....	11.5	....	....	280

From the above table it will be seen that the cereals contain some protein, but that they contain a greater percentage of starch. These are the foods needed by children for building, but which after middle life should not be eaten oftener than once a day.

Breakfast Cereals.—There are a great variety of cereals on the market—many more than need be—and they are too expensive, especially for poor people.

The palate-pleasing ways of getting up already-cooked cereals compel a large trade in these goods, even at extravagant prices. So far as their superiority over home-prepared cereals is concerned, there is room for doubt. The dry, ready-to-eat cereals would have some advantage over the home-prepared if they were eaten dry; but they are not. Milk, or cream, and sugar are used, and the mixture is bolted, giving no time for mixing the food with the saliva. Toasted bread and cooked flaked cereals have the starch more or less dextrinized; and if the process of preparation does not bring about a change in the food value, they are easier of digestion, hence more desirable as a food. But is coddling and

saving of digestive power desirable? Would not the people be better off, in a digestive way, if they were not saved the rough-and-tumble required to convert raw cereals into food for the body? Many have lost their power to digest raw starch. It is the duty of healthy people to tax their digestive power all that is possible, so as not to lose what little digestive power they have left by eating predigested food.

The power to digest raw starch is lost because of the almost universal use of cooked starch. The non-use of milk is followed by the extinction of certain glands that furnish a milk digestive. It is a law of nature that the non-use of a function causes extinction of structure.

Combinations.—The all-ready-to-eat breakfast foods should be eaten dry—thoroughly masticated and insalivated. This cannot be done when they are wet and softened with milk or cream. After eating all desired in the dry state, a glass of milk, one-fourth cream, may be sipped slowly. The cream in the milk will make up for the butter, which cannot well be eaten with most of the prepared cereals. Butter may be melted and poured over the dry flake foods. If for any reason cream should not be eaten, follow the meal with a glass of whole milk, skimmed milk, or teakettle tea—one-third milk and two-thirds boiling water.

To know the composition of the proprietary breakfast foods, apply to the companies that prepare them. They furnish the analysis.

What should be eaten, besides cereals, for breakfast? Nothing! Of course, nearly everybody eats a variety for breakfast, and everybody is sick more or less; not from an improperly prepared breakfast alone, but from dietary indiscretions. The human machine can stand up under a very great load of ill-treatment; a small percentage can live to a fair age in spite of all kinds of stupid abuse; but many are killed in childhood and early life by either

overeating or eating improper combinations. Sugar eaten with mush or other breakfast foods invites fermentation. When the digestive capacity is oversupplied, fermentation will follow. Where the eating is well within the digestive capacity, most people can get along fairly well even when they combine most ridiculously; but when, from any cause, resistance is lowered and the digestive power is weakened, the amount of food eaten must be reduced, or disease will follow.

A constant oversupply of food, in those whose digestive ability is capable of flooding the system with nutriment, will lead to obesity and acute diseases, such as rheumatism, pneumonia, or catarrhal diseases.

Children who are fed starch, milk, and sugar to excess build catarrh, enlarged tonsils, adenoids, etc.

Sugar forces overeating. A child with no desire for food can be induced to eat by a heavy application of sugar. If starch is digested, it is converted into sugar; but, when all the heat units that are required by the organism are given in the shape of sugar, the starch will be rejected. Why should digestion take place when it is not needed? The starch is not needed; hence it will not be digested, but will ferment, and poison the body with carbonic acid and alcohol.

It is impossible to say how much anyone should eat. Anything added to a staple food that induces eating, when without the added palate-tickler little, if any, of the staple food would be taken, is ruinous. Disease will follow such pampering of the appetite.

Real hunger may be known by the relish for plain foods; but overindulgence—eating too much—may even be practiced in eating the simple, plain foods. It is not infrequent—in fact, quite common—to see someone who eats too much bread. Those who force bread-eating by adding sweets and fruit preparations must come to grief in some way.

Bread the Staff of Life.—Bread becomes the staff of death after thirty-five years of age. Why not use it after this age? Because the body is built—through growing—and requires only enough mineral to keep up repairs. The cereals carry much mineral, and, if they are eaten in maturity, the body is burdened with building elements which it cannot use. As a result, premature aging and old-age diseases are forced on those who persist in eating heartily of foods made from cereals, dry beans and peas. And if what has been said about sugar and starch be true, deaths from bread have taken place in children, due to the imprudent use of sugar or sweets.

Bread—starch—is a necessary food, but, on account of its cheapness, too much is eaten by nearly all people. It is not uncommon for from four to six starches to appear on the family dinner-table; bread is eaten three times a day; and too often both bread and potatoes are eaten in some form three times a day.

Bread is commonly made by adding yeast to the flour, to cause it to rise or to make it porous and light. There are objections to the use of yeast; it tends to produce fermentation in the stomach and bowels.

Yeast is supposed to have a catalytic action on a mixture of sugar and water, causing fermentation and the generation of carbonic acid and alcohol; this, too, without the yeast becoming changed in its chemistry, which is the meaning of catalysis. This being peculiar of yeast, it should be used very sparingly, and not at all by people out of health.

That my readers may know exactly what "catalysis" means, I quote from the American Encyclopedia:

When chemical decomposition is brought about in any compound, and its ingredients are made to enter into new combinations in consequence of the introduction of another body, which does not itself form a part of any of these combinations, nor lose either of its constituents, but acts in some manner

not understood, apparently by its mere presence or contact, to excite this chemical action, is a catalytic process.

This peculiar law should be more generally understood. It certainly is a strong argument against the wholesale mixing that is observed in culinary science. No one is wise enough to say what the chemical developments will be in any mixed meal. Not only must the various foods be known and considered, but the mental and physical states of the body must also be ascertained; then the action and reaction of all these elements must be known, before man's knowledge of digestion can be said to be perfect.

Until that time comes—which is a long way off—a safe plan of eating is to eat simply—not to eat too many varieties at a meal—and to avoid eating foods together that require opposing mediums; for example, meat, which requires an acid medium, and starch, which requires an alkaline medium. Just such mixing is offered as proof that my contentions are erroneous; but I insist that the world of unnecessary sickness, premature death, crime, and insanity, that we see here, there, and everywhere, is the consequence of these very errors of eating.

Combinations.—Bread and other starchy food should be eaten as nearly without other food as possible. If we would attain ideal results, bread should be eaten without other food, or with fresh fruit. If the bread has been thoroughly toasted, so much the better. Drink hot water when through eating. One-third cream and two-thirds boiling water is a good table beverage and will go very well with bread. Milk is used with bread; but if an enervated person—one who has feeble digestive power—eats bread and milk, combined or separate, at the same meal, he will have indigestion following such a meal. Of course, tradition and custom have long since passed upon bread and milk as a correct diet, and anything said to the con-

trary is the very worst dietetic heresy and will not go far toward bringing about a change.

Bread eaten with milk is a less dietetic offense than bread eaten with the more pronounced animal proteids, such as meat, fish, eggs, etc.

Flour.—Flour most prized for bread-making shows the largest proportion of gliadin,* whether this be reckoned in percentage of the gluten or of the total proteins present. The quality of making an elastic dough, capable of large expansion in the bread-making process, depends upon both the amount and the nature of the gluten. In order to make a large, light loaf of bread, the flour should have a fairly high gluten content, and its gluten should contain a high proportion of gliadin (Sherman).

Entire-wheat flour analysis: water, 10.81; protein, 12.26; fat, 2.24; carbohydrates, 73.67; ash, 1.02 per cent.

The percentage of gliadin and glutenin in the gluten of—

Patent flour	is 69.9
Straight flour	is 59.1
Low-grade flour	is 57.3
Ship-stuff flour	is 53.8
Bran flour	is 31.9
Sifted dust	is 16.1

Leavening Agents.—Yeast is in general use for leavening bread dough.

Many who know that I do not recommend yeast bread think it one of my idiosyncrasies—notions or fads—and that the opinion is not to be taken seriously. Why should

*Gliadin: a proteid obtainable from wheat gluten. Wheat proteins, gliadin and glutenin, constitute about nine-tenths of the protein matter of the grain. In the whole grain these proteins are about equal, but in wheat flour there is more gliadin than glutenin. It is said that gliadin gives tenacity and elasticity to the gluten, while glutenin gives strength; but the two proteins must be present in proper proportions, if the gluten is to have the properties desired in bread-making.

yeast be considered unwholesome, when nearly all people eat yeast bread?

This is the argument advanced by the unthinking on all questions where custom or convention is interfered with.

To oppose yeast as leavening brings the argument that "everybody uses it." To oppose the use of tobacco brings the declaration that most people use it. To proscribe coffee and tea causes surprise; for "everybody uses these table beverages." No one appears to see the warped and distorted appearance of the human race as it passes on through life. Look upon the people "en masse," wherever found—one without a blemish is a very rare exception. Is this not a sorry reflection, if the popular belief that man is made in the image of his Maker—meaning his God—is true? Leave the Deity out of this question, and it is easy to see that people are actually made in the image of their maker. The general "tout ensemble" of the human race is as one might expect from a mixture of ferments (decomposition), tobacco, alcohol, coffee, tea, drugs, medical superstition—a type of which is to be found in "Damaged Goods," etc.

Poison the body by the use of drugs, vaccines, serums, and so-called immunizing agents; by foods improperly prepared and wrongly combined; by overeating; then to these causes add the depressed state of the mind from fear generated by priest and doctor—is there any wonder that sickness or ill-health is the rule, and that ideal health is the rarest exception?

Yes, nearly everybody eats yeast bread, and nearly everybody is more or less invalided. But bear in mind that yeast bread is only one of many causes of disease.

Nature's laboratory, in which man and every form of life have evolved, is peculiarly adjusted to the needs of the life that evolves.

Man did not evolve until a fit habitation had been prepared for him. In this home, elements for his construction are found—food necessary for his growth and maintenance. In time man learned enough to take a hand in causing the earth to furnish a larger supply of food. Because of this self-help, he gradually became conceited and believed himself the cause of his own evolution. As a result of this conceit, he has drifted far away from nature's requirements in many things. In the matter of nourishment, ridiculous mixtures of food and drink have been concocted, and, worse yet, the most grotesque cures and disease preventions have been invented. As a result of all this usurpation of creative prerogative, many mistakes have been made, neither the last nor the least of which is the belief that man may eat yeast bread, drink alcoholics, coffee, and tea, use tobacco, and poison his blood with so-called preventives, without injury to himself as an individual, or to the race.

It is reasonable to suppose that there is enough and to spare of fermentation in every man's environment, without adding more, as is done by eating three times a day of bread containing yeast that is capable of perpetuating itself by reproduction.

The more simply bread is prepared, the better it is as a food. The old-fashioned hoe-cake, Johnny cake, and corn pone are out of date; but these were the simple breads of our forebears, and would be good foods for the present generation, used in moderation.

In the past fifty to seventy-five years wheat bread and cereals have gradually been substituted for corn bread and corn-meal mush. There have also been wonderful changes made in milling. As better milling evolved, it created a demand for better grain; this meant better farming, better care of the grain, and, consequently, better food, and, neither last nor least, better health and

longer life. Corn bread and hominy (other things being equal) very rapidly age those who live on such food.

The average composition of corn meal and wheat flour is as follows:

Corn meal, granular: water, 12.5; carbohydrates, including fiber, 75.4; protein, 9.2; fat, 1.9; ash, 1.0; fuel value per pound, in calories, 1,620.

Entire-wheat flour: water, 11.4; carbohydrates, including fiber, 71.9; protein, 13.8; fat, 1.9; ash, 1.0; calories, 1,630.

Wheat flour, high-grade: water, 12.4; carbohydrate and fiber, 74.9; protein, 11.2; fat, 1.0; ash, 0.5; calories, 1,603.

The composition of the cereals does not differ enough from that of entire-wheat flour to give their analyses.

Biscuit Bread.—At the beginning of the popular use of wheat flour, bread was made with sour milk and soda. The right proportion of sour milk and soda makes a biscuit that is not excelled by the best baking-powder; but there is an element of uncertainty as regards the sourness of the milk. Because of this varying sourness, bread must vary. This uncertainty has caused baking-powder* to come into general use. Cream of tartar and soda are comparatively harmless, and the bread—biscuit bread—toasted, is wholesome far beyond that of the best yeast bread.

The breakfast foods are splendid substitutes for yeast bread. Few people, however, are willing to make a breakfast on oatmeal. Those who eat porridge for breakfast must have it dressed with sugar, and in addition eat cooked fruit, yeast bread, and eggs. Even if such mixing were compatible, it would be a dietetic error to eat so much, and to mix so many items of food in one meal.

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*Schilling's is made of chemically pure cream of tartar and soda, combined in just the right proportion to secure the greatest lifting power.

People who abuse the stomach by giving it hard and difficult grist to grind always age prematurely. Imperfect digestion, painful digestion, slow digestion, all leave their marks on the face. Such derangements hasten old age.

To eat bread three times a day, or at every meal, is the general habit or custom of the people. It matters not what other food is on the table, bread is looked for and demanded. This is one of the most pronounced dietetic errors, and one that has much to do with hardening the arteries.

Children may eat bread or cereals three times a day; or perhaps I should say that we are accustomed to thinking that children need the building foods three times a day. Even the opinion that children need so much may be a mistake, and it may be just barely possible that they are taxed into disease by feeding them so much food made from grain.

Delinquent and retarded children may owe much of their unhappy state to the evil influences of food made from grain. They should have more fruit, raw and cooked vegetables (salads), milk, cheese, nuts, and eggs, and less bread and cereals.

Grown people can get all the building material they need by eating bread not oftener than once a day.

Glutenin, which is a product of wheat flour, has been shown by the United States Department of Agriculture to be adequate for both maintenance and growth, even when it was the only protein in the diet. Mr. Sherman says:

> It is, however, only reasonable to expect that the mixture of proteins found in corn meal, or even wheat flour, will be of somewhat less value in nutrition than an equal weight of the mixture of proteins which we find in milk, eggs, or meat. Experimental observations confirm this inference and indicate that when bread is the sole source of protein in the diet, a larger amount of protein is required for equilibrium than when milk or meat is eaten.

When milk is used with bread, oatmeal, and corn-meal mushes, the meal is better balanced; for milk is rich in the amino-acid radicals in which the grains are poor. Osborne and Mendel have found that animals are not only maintained in health and vigor, but also make a normal rate of growth when three-fourths of their protein is zein (the protein of corn) and one-fourth lactalbumen, one of the proteins of milk.

The digestibility of the grain proteins is inferior to that of the animal proteins. The reasons are several. One is that the wall inclosing the grain proteins in ordinary milling is hard to digest. A second reason is that the grain composition is disturbed and some of the vital elements are removed in fine milling.

When nature's chemistry is interfered with, as in fine milling and bolting, the digestibility of flour is lessened. A whole-wheat or a graham flour will not create indigestion—bring on fermentation—as a patent flour will, because, in the latter flour, the starch, proteins, mineral elements, and the vitamines are thrown out of balance, and their proportions disturbed, causing a chemical unbalancing that favors fermentation. The above is pure theory. Experience declares that the fine patent flour is much more easily digested than the whole-wheat or graham. Less whole-wheat bread is required, however.

Baking-Powder Bread.—Good baking-powder is composed of a properly proportioned mixture of bicarbonate of soda (baking-soda) and bitartrate of potash (cream of tartar). These two basic elements—namely, soda and potash—are most necessary as constituents of a properly balanced bill-of-fare.

The list of foods in popular use are divided into two classes; namely, those that are potentially acid and those that are potentially alkaline. The latter class is represented by all raw fruits and vegetables; hence my contention for the need of fresh, uncooked fruit and vege-

table salads daily. When this is neglected, and the dietary is made up of meat, bread, cake, pie, puddings, ices, coffee, or tea, acidosis (scorbutus, scurvy) is built. In other words, a constitutional derangement will be built that is correctly named autotoxemia, on to which all diseases are grafted. Where the body is brought into this state from wrong eating, it becomes a favorable habitat for germs of all kinds.

When this state of the blood is brought about, fermentation starts up with the slightest excuse.

It has been my experience that properly made baking-powder bread is far superior to yeast bread as a health-conserver.

The bread may be baked in biscuit form, then split and toasted; or it may be made into a loaf, then sliced and toasted.

Yeast bread is one of a combination of causes required to produce tonsilitis, gastric diseases, constipation, and many other such diseases, the foundation of which may be traced to constipation.

If long life is desired and health required to get the best out of life, yeast bread should be tabooed. Any of the cereals may be substituted for biscuit bread or corn bread once or twice a week. After thirty-five years of age, eating of grain products should be confined to one meal each day; after forty or sixty years of age, to three times a week; and after eighty no grain foods should be eaten at all.

From sixty years of age on, man should live on fruits, salads (vegetable), milk, cheese, eggs, and very little, if any, meat.

Grain and meat have a tendency to develop acidosis. The older man gets, the less power he has for resisting the devitalizing effects of acid-producing foods, and, unless a halt is called in the eating of such foods, a time will come when the body will fail to oxidize the acid, potas-

sium tartrate (cream of tartar), so abundantly found in all fresh fruits and vegetables; then acidity follows, with all its evil consequences. It is necessary to retain the power to convert the cream of tartar of fruit and vegetables into an alkaline base; for this base is the system's great antiseptic. It gives the body its resistance to the putrefactive changes which are at all times imminent and which finally lay man low.

Acid fermentation—acidosis—is the nemesis that threatens man from the cradle to the grave. It may take him away at birth, in childhood, in manhood, or in old age, unless he lives right. It torments him with many pains and many afflictions—so much so that many look upon old age as something to be shunned. This is not necessarily so. Old age should be the harvest time—the time for enjoyment, the time to see all and know all, and to be able to look upon the mistakes and follies of life with patience and charity. As life is commonly lived, the majority die long before sixty years of age; and many of those who are alive should be chloroformed to get them out of their misery.

This is the time of life when we reap what we have sown. If we learn to respect law in youth and middle age, it certainly will respect us when we are old. It is necessary to build well, if we are to enjoy health, happiness, and long life. We cannot build disease and enjoy health. Old age without health is built by self-indulgence and is self-condemnatory. An unhappy old age is the legitimate ending of self-indulgence.

The blood and fluids of the body are potentially alkaline, and, to maintain health, it is necessary to eat with a view to maintaining this natural state of the blood. If mankind ate of raw food—food as it comes from nature—it would not be necessary to pay much attention to what is eaten; for the chemistry of food is well adapted to the needs of animal life. The cosmic energies and

tendencies are in keeping with cosmic needs; in other words, there is a general adaptability of means to ends—of supply to demand. In the usual cooking and mixing of foods the chemistry is changed, and this brings about change in the human body.

Acidosis.—As stated above, excess of acid in the body is the principal cause of all kinds of diseases.

The conventional style of eating a preponderance of those foods that are potentially acid—namely, bread, meat, rice, puddings, pies, cakes, custards, preserved fruits, pickles, coffee, tea, cocoa, chocolate, malted milk, etc.—builds autotoxemia, acidosis, scurvy, scorbutus. Autotoxemia is brought about, more often than otherwise, by bringing on enervation from overeating. The acid development from fermentation caused by a daily intake of too much food, or of potentially acid foods, produces enervation. When the system is enervated, organic functioning is more or less inhibited, causing a retention of waste products—hence autotoxemia. Autotoxemia may be recognized as the early or first stage of scorbutus—acidosis—scurvy. When the eating excludes potatoes, beans, peas, fresh fruits, and vegetable salads, disease is brought on. This style of eating causes catarrh, rheumatism, tonsilitis, all kinds of sore throat and children's diseases.

That there may be no confusion, I shall explain that the theory of acidosis in no wise nullifies my theory that enervation—lost nerve power—is the cause of faulty elimination, and that inhibition of elimination causes an accumulation of the excretions or autotoxemia (poisoning by one's own excretions). Where enervation has been brought on by the constant oversupply of potentially acid foods, the manufacture and retention of an acid in the system are so rapid that a few weeks of such exclusive eating bring on what is known as scurvy—acidosis. Acidosis may be said to be an extreme type of

autotoxemia. This, however, is not exactly the truth; for acidosis is more the result of food poisoning than of poisoning by retained excretions.

People who eat bread, meat, cakes, and generally cooked foods, have mucous patches, or small ulcerations, show on the tongue, mouth, throat, vulva, vagina, and other parts of the reproductive organs. Undoubtedly an acid state, causing herpes (inflammatory patches on the mucous membrane or skin), is often miscalled syphilis and treated as a venereal disease. It is obvious to the discerning that great harm must follow a treatment which is diametrically opposite the one needed. When mucous patches caused by scorbutus or scurvy (a disease due to lack of consumption of fruit and vegetables) are mistaken for syphilis and treated with mercury (a treatment that proscribes all fruit-eating), it is easy to see that such treatment must cause great suffering and much unnecessary ill-health. It is not strange that such symptoms as those described in "Damaged Goods" are seen. Why should not the Wassermann test show a positive reaction in acidosis? The acid state should bring about a positive reaction in all cases presenting symptoms of scurvy—scorbutus—acidosis. The treatment should be fruit, not mercury or arsenic—"606."

All fresh fruits are potentially alkaline, and so are potatoes, beans, and peas.

LEGUMES

Of the legumes, the pea and bean are the most important food products. They are especially favored by vegetarians, because they furnish more proteid than meat and are considered a better food. But when the digestibility of beans and peas is compared with that of meat, meat must be given the precedence. Many invalids find it impossible to digest the dry bean and dry pea. The legumes contain a large portion of carbohydrates (starch)

and a small amount of fat, besides a large amount of water.

Kind of Food Material	Water, Per Ct.	Protein, Per Ct.	Fat, Per Ct.	Carbo-hydrates, Per Ct.	Ash, Per Ct.	Fuel Value per Pound
Dry Lima beans.....	10.4	18.1	1.5	65.9	4.1	1586
Fresh Lima beans...	68.5	7.1	0.7	22.0	1.7	557
Dry beans..........	12.6	22.5	1.8	59.6	3.5	1586
Dry peas...........	9.5	24.6	1.0	62.0	2.9	1612
Green peas..........	74.6	7.0	0.5	16.9	1.0	464
Lentils............	8.4	25.7	1.0	59.2	5.7	1620
Peanuts............	9.2	25.8	38.6	24.4	2.0	2560

Abel points out three reasons why legumes are hard to digest:

1. As generally prepared and used, the nutrients of vegetable foods are inclosed in cells composed of cellulose or woody fiber, which is more or less hard and greatly interferes with their absorption.

2. Vegetable food is prone to fermentation in the intestines, thus increasing the peristaltic movements, and, if large amounts are eaten, hastening the food onward before there has been sufficient time for the absorption of its contained nutrients.

3. The cellulose present acts as a local irritant and produces the same effect.

Beans and Peas.—Dry beans and peas are characterized by high protein content. They are not only richer in protein than green vegetables, but, when dry, they show higher percentages of protein than canned or fresh meat. They also contain a large amount of carbohydrate and a small amount of fat. As will be seen, they are of higher fuel value than meats. Meat carrying enough fat to equal the fuel value of dry beans or peas would be quite short in protein content.

To recommend them as of great value as a food, beans and peas carry a large percentage of the base-

forming elements, and, when properly cooked, supply alkali.

The composition of beans and peas, compared with that of other foods, gives them the appearance of being superior to all others in food value, and, if fully as digestible, they are superior to other foods. But "there's the rub"—they are not so easily taken care of by the digestion, and living on them exclusively, or nearly so, will cause premature aging and bowel disease—diarrhea is common.

Beans are potentially alkaline, and from this fact should be a valuable food; but, in cooking, this element is often soaked out and thrown away.

A very common way of preparing beans is to soak them overnight in water, drain, and add more water; then parboil and drain again; then once more add water, and finish the cooking. By this manipulation the beans are robbed of their alkalinity. When cooked in this way, and eaten with meat, bread, pie, cake, or pudding, the acid-forming elements are so pronounced that the foundation is laid for scorbutus (scurvy). A few of the minor symptoms are the frequent developing of sores in the mouth; spongy, bleeding gums, which are an early symptom of pyorrhea; paleness, or anemic appearance; languor, depression.

To prevent those who are inclined to eat such dinners from going down and out rapidly, they eat more or less fresh vegetables and fruit—not enough, however, to prevent a gradual breaking-down from acid poisoning, which prematurely ages and brings on old-age diseases.

One of the peculiarities of a scorbutic state is that, when once established, the victim of the disease declares he cannot eat fruit—that fruit hurts him, makes him uncomfortable. This is more or less true, and is a case of grieving away the holy spirit of self-protection.

Man's self-protection is in full operation when he is in full health. He has the power to protect himself from wrong eating and wrong drinking. He can discriminate between evil and good influences. But this great sense of self-protection is largely blunted before he lives long enough to enter his teens. People of a nervous mental temperament are inclined to have much fermentation following the use of dry beans and peas. This produces much flatulency, and where the bowels become very much distended, patients are thrown into great distress. If physicians are called at this time, especially those who are inclined to think strongly of the appendix, a diagnosis of appendicitis will be made, and the patient run to the hospital for an operation. If, however, the operation is postponed until the next day, the pain is gone, along with the appendicitis. It would be well for people who are in the habit of eating beans, or any food that produces flatulence, to remember this, so that, if at any time they are thrown into distress from gas in the bowels, they may have courage to wait until this condition has passed away, and thus save themselves an unnecessary operation.

Lentils.—Lentils are not in common use in this country. They are used more in the South than in the North and West. The chief supply comes from Egypt, only a few being grown in Europe. They are highly nutritious. The flavor is disagreeable to some people, and that is probably the reason why they are not so popular in this country as beans and peas. There is no reason why they should not be as indigestible as beans or peas. They are to be prepared in the same way as beans, and eaten in the same combinations.

Peanuts.—Peanuts are not nuts at all. They are the gopher bean, and belong to the legume family. When cooked, they are very similar to the navy bean. In cooking, they throw out an odor exactly like that of the navy bean. One advantage the peanut has over beans is that

the peanut may be roasted and is palatable, whereas the bean would not be. For stewing or broiling purposes the peanuts should be fresh, not roasted, and should be soaked and cooked in the same manner as directed for beans. They should be eaten in about the same combinations.

Combinations.—The food combinations that should be made when legumes are to be used, ought to be about as follows: beans or peas, one or two cooked, non-starchy vegetables, and a combination salad. Beans are supposed to take the place of meat. They are eaten more for the proteid that they furnish than for any other food property. Proteid should not be eaten unless in combination with a salad. This holds good with all the different species of legume. It is a mistake to eat beans and meat together. The system will be oversupplied with proteid, and trouble will be experienced. Beans and a combination salad, with nothing else, make a very substantial meal. By no means should bread be eaten in the same meal with beans; for two starches should not be eaten in the same meal.

ROOTS AND TUBERS

Material	Water	Protein	Fat	Carbo-hydrates	Ash	Fuel Value per Pound
Irish potato	62.2	1.8	0.1	14.7	0.8	295
Sweet potato	55.2	1.4	0.6	21.9	0.9	440
Artichokes	79.5	2.6	0.2	16.7	1.0	358
Beets	70.0	1.3	0.1	7.7	0.9	167
Carrots	70.6	0.9	0.2	7.4	0.9	159
Parsnips	66.4	1.3	0.4	10.8	1.1	236
Turnips	62.7	0.9	0.1	5.7	0.6	124
Radishes	64.3	0.9	0.1	4.0	0.7	91
Onions (fresh)	87.6	1.6	0.3	9.9	0.6	220
Rutabagas	88.9	1.3	0.2	8.5	1.1	186

Roots and tubers furnish a very important class of vegetables. They contain both starch and sugar, and to these constituents is due their chief value as a food. They

do not carry much protein, and carry a large percentage of water; hence they are inferior in nutritive qualities to beans and peas.

Irish Potato.—This potato heads the list of roots and tubers, and is classed with the decidedly starchy foods. When properly cooked, it is easily digested and very nutritious. The best manner of cooking is baking. It should be washed with a brush and then scraped; next a few punctures with a fork should be made, to allow the gas to escape; and if the potato that is prepared for cooking is a good variety, it should come out of the oven mealy. When boiled in water, the potatoes lose much of their salts. The jackets should be left on when boiled. I think it is a mistake to add salt to the water when they are being cooked, because salt increases the density of the water, and, as the lighter fluids go to the dense, the fluids of the potato would be drained into the water in which they are being cooked, and in this way more of the salts would be extracted than necessary, or more than would be the case if cooked in plain water. The salts are retained by baking or roasting, and cooked in this way the potatoes are rendered very much more easily digested.

Sweet Potato.—This special root vegetable contains more water and sugar, and less starch, than the white potato. It should be cooked in the same way, and, when care is taken to make a few punctures with a fork, it will usually come out of the oven mealy.

Yam.—The yam is a tuber resembling the sweet potato. It is a delicious food, and should be cooked in the same way. Some varieties are almost as sweet as honey.

Jerusalem Artichoke.—The Jerusalem artichoke is common in England. Not much attention is paid to it in the United States. It is somewhat on the order of the

Irish potato—is more watery, contains less starch, is not nearly so nutritive—hence easier of digestion.

Combinations.—Potatoes should always be eaten with a combination salad. They may also be eaten in combination with the vegetables listed as non-starchy on page 171. Potatoes should not be eaten with a meat meal, and I do not recommend combining potatoes with other starchy foods, such as bread, Lima beans, etc. (See list, page 171, for the decidedly starchy foods.) If a dessert must be used after a dinner containing potatoes, ice-cream or ices may be used; occasionally custard or blanc mange. However, it is not good to mix two starches; hence blanc mange made from starch is not a very good dessert to follow potatoes. It is quite common to have roast beef and potatoes, and the majority of people look upon it as a proper combination. Those, however, who wish to be conservative, and avoid wasting nerve energy, should avoid such combinations. The same combinations apply to yams and Jerusalem artichokes.

Beets, Carrots, Parsnips, Turnips, Radishes, are root vegetables that contain quite a large percentage of sugar and some starch, but they should be classed as non-starchy vegetables. These vegetables should be eaten with meat dinners, consisting of meat, cooked, non-starchy vegetables, and a combination salad. They may also be eaten with decidedly starchy foods, such as the potatoes, in combination with a good salad.

Aside from the starch and sugar they carry, they are valuable for the food salts they contain.

GREEN VEGETABLES

In the past fifteen years the green-grocery trade in the city of Denver has grown from almost nil—from a time when it was almost impossible to get material for a first-class combination salad—to a time, say ten years afterward and now, when any day in the year the house-

wife may order from any grocer prime head lettuce, tomatoes, and cucumbers, without any fear that she will be unable to get these vegetables.

Material	Water	Protein	Fat	Carbohydrates	Ash	Fuel Value per Pound
Lettuce	94.7	1.2	0.3	2.9	0.9	87
Tomatoes	94.3	0.9	0.4	3.9	0.5	104
Cucumbers	95.4	0.8	0.2	3.1	0.5	79
Celery	94.5	1.1	0.1	3.3	1.0	84
Spinach	92.3	2.1	0.3	3.2	2.1	109
Cabbage	91.5	1.6	0.3	5.6	1.0	143
Asparagus	94.0	1.8	0.2	3.3	0.7	101
Beans, string	89.2	2.3	0.3	7.4	0.8	189
Cauliflower	92.3	1.8	0.5	4.7	0.7	138
Corn, green	75.4	3.1	1.1	19.7	0.7	459
Egg-plant	92.9	1.2	0.3	5.1	0.5	127

Fifteen to eighteen years ago most of the best physicians declared that green, uncooked vegetables were disease-producing. Professor Metchnikoff advocated the cooking of vegetables and pronounced strongly against eating raw fruit and vegetables, contending that typhoid-fever germs lurked in a dish of salad. A few physicians with rheumatic joints and bad breath remain in this state of benigtedness, and glory in their ignorance, which they persist in pronouncing scientific wisdom; but the best physicians—those who are susceptible to truth—not only eat vegetable salads, but prescribe them. As a consequence, there is a very great decline in catarrhal diseases. Sore throats have declined fifty or more per cent in families where salad is eaten; the bad habit of eating bread or starch with sweets, cooked and preserved fruits, and jellies has been stopped; tonsilitis, rheumatism, and, in fact, nearly all diseases, have been driven out by the use of salads and fresh, uncooked fruits. All that is necessary to add to the foregoing prophylactic suggestions is: Banish overeating; then the people may say good-by and "fare-u-well, Brother Watkins-a," to the family physician.

From almost no trade in vegetables that are eaten without cooking, and even those that are to be cooked, the Denver trade has grown to require, for the past four, five, or more years, two hustling wholesale houses that handle green groceries only.

From a time, less than eighteen years ago, when, in traveling, a vegetable salad could not be had for love or money, we have arrived at a time today when a combination vegetable salad can be had anywhere. So general is the use of green vegetable salad that, if ordered anywhere within civilization, and it cannot be furnished, an apology is forthcoming from the restaurateur.

Green vegetables and fresh fruits, eaten in proper proportion with the common staple foods, will immunize from typhoid fever,* diphtheria, scarlet fever; in fact, from all so-called contagious diseases.

The high cost of living, and especially the high cost of all kinds of meats, is going to solve many problems regarding economy, health, etc.; for the people are going to be forced into growing their own vegetables—all they need for summer; and nuts and fruit will solve the problem for winter.

It is true that fruit is quite high in price, but there is no law against the common people growing enough apple trees on an ordinary city lot to furnish them all the apples they need for winter use; and it does not take much ground on which to grow vegetables and fruits enough for the largest families.

Where is the working-man to get the land on which to enjoy all this luxury? City lots are too high in price, and land outside of the cities is too high in price for poor people to own.

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*This is exactly opposite to professional contention; for it is claimed that raw vegetables carry typhoid germs into the system.

My dear people, take a tip from the writer: Stop the use of tobacco, alcoholics, coffee, and tea; stop stuffing bread and starch simply because it is cheap and easy to get; and then, by all means, stop land monopoly by voting "Single Tax." After that it will not be many years before every head of a family will own his own home, and have a healthy family, with all the good, wholesome food necessary for any human being to eat.

A few things that bind the shackles of poverty and discontent on the masses are: tobacco, alcoholics, coffee, tea, bread used as the "staff of life;" idleness when not at the regular employment; gossip; finding fault with a miserable existence, built by an ignorance and shiftlessness that are often expressed by some such statement as: "The world owes me a living, and I am going to have it;" or, "The laws are all against the poor man, and he has no chance."

Bad habits, and the ignorance that fosters them, are the fundamentals out of which poverty and discontent are built.

"The poor man needs alcoholics, tobacco, coffee, and tea;" "He needs these few luxuries;" "You should not rob him of his only enjoyment;" "Certainly he is entitled to this much." And, in enjoying these stimulants, and other sensusal pleasures, and cultivating the habit of feeling sorry for himself, he enervates and mystifies his brain to such an extent that he loses all self-protection; after which he becomes the tool of commercial sharks, and votes as a machine, and invariably against his own interests.

The only salvation for the people is to get sober by stopping the use of all stimulants, and learn to eat right and think right. Until able to do better, eat cooked, dried fruit or fresh fruit for breakfast; for dinner at noon, stewed meat, cabbage slaw, and a cooked, non-

starchy vegetable; for supper, toasted whole-wheat bread and milk.

Stop voting the conventional ticket. For what measures shall the people vote? Certainly not for those that are perpetuating the past and present causes of their discomfort. If the people would get away from the present disease-building regime, they certainly ought to have sense enough not to expect a change for the better by sending for the same doctors and voting for the same politicians.

If following a given road always leads to trouble, why not change the route? Even ants change when they find a certain route dangerous.

Wake up, lift the land monopoly, stop bad habits, and free the body and mind from drunkenness!

Alcohol is not the only inebriant; coffee, tea, tobacco, and erroneous ideas are others. The people are drunk as often on disease-producing ideas as they are on stimulants and food poisoning. Indeed, inebriating habits are interchangeable.

When man learns to eat more rationally than he does now, he will be healthier, happier, and more prosperous.

If people do not know how to prepare and cook vegetables—how to prepare them for eating as they should be prepared—they should be taught.

As stated before, vegetables and fruits, eaten as they should be, are immunizers from disease. Not, however, when eaten as they are usually prepared—namely, cooked in a lot of water, or cooked with meat, butter, or other fats. Vegetables should be cooked in their own juices, as in a double boiler, or with very little water, or in a Steam Cooker; positively no dressing until ready to serve, or after they are served, when salt, cream, or butter may be added.

All vegetables that are palatable may be eaten raw by those who can masticate them thoroughly. Cooking

adds no virtue to foods; indeed, nutritive virtue is abstracted from all. However, because of our inability to masticate grain well, grains and their products should be cooked. Man cannot take proper care of grain, in a masticatory sense, and he also has difficulty in digesting raw starch.

Meat and grain should be cooked; for man cannot be sure of his digestive ability to kill the ova of parasites taken into his body by the eating of raw meat and whole grain, or milled and unbolted flour.

Salads made of raw vegetables—such as lettuce, tomatoes, cucumbers, celery, spinach, cabbage—and all kinds of fresh fruits, are the most important foods placed on the dinner-table, because of the antiseptic character of their juices, the oxygen they carry, and, neither last nor least, the cell salts which are important to tissue renewal. The idea that many people have of a salad is erroneous—namely, that it is a relish which may be left out of the meal with impunity.

A conventional salad consists of a tablespoonful of cooked or raw fruit and vegetables, placed on a lettuce leaf and served with some sort of dressing. The conventional conception of a salad is that it shall be small enough to serve as a relish. The idea that a salad should be large enough to be one of the most important dishes on the dinner-table has not dawned on convention's haphazard-eating, dyspepsia-building mental horizon.

Diet-wise people look upon the idea of green vegetable salad being as necessary to health and life as meat and bread as most absurd. That "food for cows"—vegetables—should be made to rank in importance with the two acknowledged staffs of life—namely, bread and meat—is the dietetic drivel of ignorance.

The truth is that no one should eat either bread or meat without raw vegetables. I mean that vegetarians should have a large salad with their dinner, and those who

eat meat should accompany all meat meals with a large combination salad.

An efficient salad should never be smaller than what chopped-up vegetables can be placed on a large-size dinner-plate or soup-plate. Fresh, crisp salad vegetables take up much room, but when thoroughly masticated they are reduced to at least one-third the space occupied previous to being eaten.

On the subject of eating, doctors and patients know, or think they know, that it is necessary to eat freely of "good, nourishing food," consisting of a goodly supply of proteids—meats or animal foods of all kinds, whole grains of all kinds, and dry beans and peas; carbohydrates—starches and sugars; and hydrocarbon—fats. If fruits or succulent vegetables are eaten at all, it is with apologies to their digestive organs for imposing on them such bulky and unimportant foods.

The consequence of such an acid-producing style of living is a body surcharged with acid poisoning, causing all sorts of diseases—enervating both mind and body, and, neither last nor least, causing early death.

Fruit and succulent vegetables, properly proportioned with staple foods, will immunize against the diseases that are to be found everywhere, resulting from overeating on staple foods recognized as life dependents.

The potentially acid foods may be said to be all animal foods and all cooked foods, including fruits and vegetables, except potatoes, dry beans, and peas.

The potentially alkaline are the raw fruits and vegetables; also dry beans and peas, when not ruined in cooking.

FRUITS

According to most authorities on diet, fruit is considered of little value. They declare that fruit carries very little nutriment. This I consider a very great mis-

take. Fruit is a most valuable food. It not only carries starch, but it carries sugar and tissue salts, and the tissue salts are of great importance. When this same class of authors have a case of anemia presented, they know the importance of iron. Instead of giving drug irons, they would have very much better results if they would feed fresh, uncooked fruit; for this class of food presents the mineral elements of the body in a manner that is easily

Material	Water	Protein	Fat	Carbo-hydrates	Ash	Fuel Value per Pound
Apples	84.6	0.4	0.5	14.2	0.3	285
Apricots	85.0	1.0	....	13.4	0.5	263
Bananas	75.3	1.3	0.6	22.0	0.8	447
Blackberries	86.3	1.3	1.0	10.9	0.5	262
Cherries	80.9	1.0	0.8	16.7	0.6	354
Cranberries	88.9	0.4	0.6	9.9	0.2	212
Figs (fresh)	79.1	1.5	....	18.8	0.6	368
Grapes	77.4	1.3	1.6	19.2	0.5	437
Lemons	89.3	1.0	0.7	8.5	0.5	201
Muskmelons	89.5	0.6	....	9.3	0.6	180
Oranges	86.9	0.8	0.2	11.6	0.5	233
Peaches	89.4	0.7	0.1	9.4	0.4	188
Pears	84.4	0.6	0.5	14.1	0.4	288
Plums	78.4	1.0	20.1	....	0.5	383
Strawberries	90.4	1.0	0.6	7.4	0.6	177
Watermelons	92.4	0.4	0.2	6.7	0.1	57

assimilated, whereas mineral or drug irons are absolutely refused by the system, and not only do no good, but do harm to digestion from their local irritating effects on the stomach and bowels. The tables on food values ascribe to fruit: sugar, a small amount of nitrogenous matter, cellulose, starches, organic acids, and a vegetable jelly called "pectin," which causes fruit to gelatinize when boiled. The sugar present in fruit is what is known as fruit sugar or levulose. Some fruits contain considerable cane sugar. Fresh fruit contains from seventy-five to ninety per cent of water. It is a distilled water, so to speak. Fruit contains less earthy salts than other foods.

The principal mineral element is that of potash, united with tartaric, citric, and malic acid.

Fruit stands first in importance as an anti-scorbutus agent. People who proportion their meals well—who select a proper dietetic blend—will not develop diseases of a scorbutic character. The disease known as scorbutus is based on an acid condition of the system, due to eating foods which are acid-producing. Inasmuch as all raw fruits and raw vegetables are potentially alkaline, it should be apparent to any thinking mind how necessary it is to have a certain amount of raw fruit and vegetables in every day's dietary.

Scorbutus, or scurvy, is common to people who are deprived of fresh fruit and vegetables. Sailors frequently evolve this disease when kept away from land for a long time.

Most authors declare that stewed fruits are more easily digested than raw fruits. This may be true to a certain extent, but it does not prove that raw fruits are not best. Indeed, comparison between raw fruits and cooked fruits is very greatly in favor of the former, from the standpoint of nourishment. There is little left of the nourishing properties of fruit when cooked. Baked apple is pleasant, because one is conscious of having had something to eat; but, aside from the dressing of sugar and cream, there is little to recommend it, as its alkaline potentiality is made nil by cooking; whereas a raw fruit carries life into the system by way of important food elements—the base salts.

Oranges, lemons, grapes, and peaches are classed as easy of digestion, whereas raw apples, pears, and bananas are somewhat less digestible. The pears, however, are more laxative and should be thought of when constipation is to be overcome. In hot weather, lemons and limes should be taken by those who are obese. People who are overweight should be careful of sweets of all kinds.

Combinations.—For people who are overweight the proper regimen would be fruit for breakfast; lemonade if desired, but the lemonade should be made with very little sugar or none at all; at noon, fish, meat, or eggs, with a combination salad. This meal may be accompanied with lemon or lime juice in the form of lemonade. The meat dinners should be taken every other day, and the alternate days cooked, non-starchy vegetables with a combination salad; lemonade if desired. The evening meal should be fruit and lemonade, or fruit and ice-cream; or once or twice a week custard with fruit; occasionally apple pie and fruit, or an ounce of cheese with fresh fruit, or fruit and buttermilk.

For people who are under normal weight the sweet fruits should be used, avoiding the fruits that are decidedly tart. Oranges should be sweet; lemons should not be eaten on account of their anti-fat properties. In the winter time, raisins, dates, and figs may be used for one meal a day, with milk, cottage cheese, or cream cheese; and then one meal of toasted bread, or any cereal that may be desired. Those who are not troubled with catarrh may use milk with this meal. Where there is a decided catarrhal condition, milk and cream should be avoided, except what little is taken into the system by using teakettle tea—one-third milk, two-thirds boiling water, and no sugar; for those who are troubled with a great deal of catarrh should avoid sweets as well as milk and cream. The dinner should be the same as for those who are obese—namely, meat, cooked, non-starchy vegetables, and salad every other day; but on alternate days a decidedly starchy food with the salad and vegetables.

NUTS

Nuts, according to many authors, contain a large quantity of fat. They are said to have but little food value, and are eaten mostly as a dessert. This is a very

great mistake. Nuts should never be used as dessert. It would be as reasonable to take a piece of fat beefsteak for dessert as to take nuts. The eating of the average individual is so abominable that instructions on right lines will appear to be inefficient for a supporting diet. The truth of the matter is that the average person could live long and have good health on one-fourth of the amount consumed at present.

Material	Water	Protein	Fat	Carbo-hydrates	Ash	Fuel Value per Pound
Almonds	4.8	21.0	54.9	17.3	2.0	2940
Brazil nuts	5.3	17.0	66.8	7.0	3.9	3162
Chestnuts	45.0	6.2	5.4	42.1	1.3	1097
Cocoanut (without milk)	8.9	3.6	31.7	17.5	1.0	1677
Pecans	2.7	9.6	70.5	15.3	1.9	3330
Walnuts	2.5	18.4	64.4	13.0	1.7	3200

The idea that a food which contains from three to twenty-one per cent protein, from five to seventy per cent fat, and from seven to seventeen per cent carbohydrates is of no value, is too absurd to be repeated.

Nuts are a valuable food. When eaten in the right proportion with fruit and cheese, they will give a well-balanced bill-of-fare. Nuts, like beans, carry so much cellulose that it makes them hard to digest. This is one reason, I presume, why they are not more popular as a staple food.

Because of the high cost of living, it would be well for nuts to receive more attention as a food. I am satisfied that, by educating the people into their use with other foods, they can be made to take the place of meat and help bring down the high cost of living.

Almonds.—Almonds contain much fat, no starch, and very little sugar. They are said to be used as bread for diabetes. It is very far-fetched to use simply a fatty food for diabetic subjects. Diabetes, the same as all dis-

eases, must be treated according to the needs of the patient, no two being alike. Almonds, peanuts, cheese, and fruit make a substantial meal.

Chestnuts.—The chestnut contains a small amount of oil and a very large proportion of carbohydrates. If eaten with almonds and fruit, they would make a very good meal.

Walnuts.—The walnut contains a large proportion of protein, but it is quite indigestible. It is probable that the indigestibility is due to the brown covering, which contains tannin and is irritating to many stomachs. If the walnut meats could be blanched, this nut would make an ideal food. I do not mean that it is an ideal food in the sense that it represents all the food elements required, but it contains 18.4 per cent of protein. Then, if almonds, which carry fat, and a combination salad or fruit, be added, this would balance the properties, so that, if these two nuts were eaten with fruit or a combination salad, this meal might be said to be a very good dietetic blend.

Pecans.—The pecan is a growing favorite. I think it is worthy of general adoption. Some nuts have more proteid, and some have more fat; but the pecan is a splendidly flavored nut, and is enjoyed by all people who care nothing at all for nuts.

About forty half-meats of the average pecan are enough for one meal, along with vegetables and salad in about the proportion that these vegetables would be taken with a meat meal. To raise the proteid equivalent, and also the fat, it would be well to combine as follows: Serve a small dish of cottage cheese, forty half nut meats of the pecan, with two ounces of sweet fruits—raisins, dates, or figs; cooked, non-starchy vegetables, and a combination salad; or, if it is not convenient to have the vegetables, use a half-pound of fresh fruit—I mean any kind of

fresh fruit that is in season. Apples do very well in the winter time.

Brazil Nuts.—The Brazil nut is another variety that is deserving of great favor. Some people imagine it is too fat and hard to digest. This is a mistake. I have found that twenty half-meats of the pecan, with ten medium-sized meats of the Brazil nuts, are enough for an ordinary meal, in connection with the foods that are commonly prescribed in the meat meal.

Cocoanuts.—The cocoanut is indigestible and should not be used as a food by people who have trouble with their stomachs.

Combinations.—Nuts may be used with fruit. So far as special combinations are concerned, nuts should be recognized as belonging to the proteid foods, and should be combined with foods that are usually taken with meat, dry beans and peas. In other words, I class nuts with meat. There is one difference, however, and that is that I allow the eating of nuts with bread, on account of the large amount of fat contained therein, but I do not advise the mixing of meat with starch of any kind. When nuts are to be taken with bread, use only about half as much butter as ordinarily used with plain bread and butter. A good combination for the day is: fruit for breakfast; for the noon meal, two ounces of cheese and nuts, with some simple dessert, such as fruit; or, in the winter time, take about four ounces of raisins and figs for the noon meal; then, in the evening, have about forty pecan meats, two cooked, non-starchy vegetables, and a combination salad with a little fruit, for dinner.

FUNGI

Mushrooms.—Mushrooms are the only fungi that I care to mention, as I never recommend any. To me the mushroom, and other growths coming under the head of fungi, are vegetable cancers, tumors, etc. There are

quite a variety of mushrooms, and we frequently hear of people being poisoned by their use. Some people declare that mushrooms are praised chiefly for their agreeable flavor. I have never been fortunate enough to find any taste at all to mushrooms. It is just possible that they may taste of the beef or fat with which they are served. It is said that they possess some nutritive value. I might just as well have left out the subject of mushrooms; for I never recommend them, and I have never taken the trouble to ascertain what amount of nutritive material they contain, because there is no trouble about finding other foods which contain so much more that it is a waste of time and material to advocate the use of the vegetable tumors.

CHAPTER V

SUGAR

"SUGAR" is a general name for a class of compounds belonging to the group of carbohydrates.

Chemically, sugars are divided into: cane sugar (the ordinary sugar of commerce), $C_{12}H_{22}O_{11}$; glucose (grape sugar or starch sugar), $C_6H_{12}O_6$; and lactose (sugar of milk), $C_{12}H_{22}O_{11} + H_2O$.

Saccharine is derived from coal tar, and is 280 times sweeter than cane sugar. It is used as a substitute for cane sugar in diabetes, but is of no special value in the disease. It is aseptic—not taking on decomposition. Mineral differs from vegetable and animal in that it does not become septic as animal matter does, or decompose as vegetable matter does.

An excess of sugar above the requirements for energy is retained in the body, in the form of either glycogen or fat.

Glycogen ($C_6H_{10}O_5$) is known as animal starch. Starch ($C_6H_{10}O_5$), a widely spread plant substance, is found in nearly all plants above the fungus. Starch is a heat- and force-producer. Rice contains the greatest percentage of starch—from 76 to 87. Sago, tapioca, arrowroot, corn flour, and maizina (ma-zi-na—flour made from maize) are in the class with rice, containing about 83 per cent starch. Pearl barley contains from 38 to 76 per cent, and fine white flour, 74. Wheat, rye, maize, millet, and Scotch oats range from 44 to 54 to 71; beans, peas, bread, whole oats, and lentils, from 36 to 52.

Sugar is found in all vegetables. It is a carbohydrate, and all the carbohydrates contain hydrogen and oxygen in the proportion in which they form water—that is, two atoms of hydrogen and one of oxygen—and usually six carbon atoms, or some multiple of six.

While all vegetables and fruits carry sugar, only two—the sugar-cane and sugar-beet—play an important part in the world's supply of sugar. The maple and palm trees furnish a small amount, but not enough to make a very large showing in the general reckoning.

The production of raw sugar from sugar-cane is a wonderful industry. Cane resembles corn, but grows very high.

In growing a crop of cane, the tops of the preceding crop are cut off and planted in plowed furrows, and cultivated until the rainy season, after which there is no more cultivation. In this country the cane is not allowed to grow more than ten or eleven months before it is cut, but in Honolulu it can be grown for two years without cutting. In our southern states the weather is inclined to be a little too frosty to allow the cane to grow too long without receiving attention. It is cut down and stripped of its leaves. The industry has grown to such proportions that now wonderful machinery is employed to do the work.

Cane is grown in tropical and semi-tropical countries. It reaches a height of from six to twelve feet. Its native home is India, and it is mentioned in the old sacred books of the Hindus and in ancient Chinese writings, centuries before Christ. The soldiers of Alexander the Great brought back great stories about the wonderful reed which yielded a juice as sweet as honey. The Persians and Arabs carried the cultivation of the sugar-cane westward. Sugar was grown and refined in the valleys of the Tigris and the Euphrates as early as the tenth century before Christ. The crusaders found sugar-cane and sugar

factories in Syria and Palestine, and brought back samples of the product. The Saracens introduced the cultivation of sugar-cane into Sicily, and the Moors into Spain.

Chocolate has a heat value of 2,772 calories per pound—one-third more than pure sugar. It is thus obvious that chocolate candy is a greater tax on the digestion than pure sugar.

The body is supposed to require about 2,000 heat units each day, and when a pound of bread, two ounces of butter, and eight ounces of meat are eaten, more than 2,000 heat units have been taken. Where, then, does the heat supplied by the sugar-consumer go—what becomes of the surplus heat?

One pound of bread furnishes 1,100 calories, six ounces of meat furnish from 250 to 450 calories, and two ounces of butter add about 436 more heat units. Many people eat two or three kinds of starch and fat with every meal, besides meat, fried eggs, and perhaps breakfast bacon. There are a great many people who eat food representing 4,000 units of heat, when they require not more than half that amount.

The present per-capita consumption of sugar in England is 95 pounds; in the United States, 85; Germany, 49; France, 43; Austria, 25; Russia, 24; Turkey, 20; Spain, 16; Italy, 11. The Italians use a great deal of fat and oil, and that is true of most of the countries which do not use so much sugar as we do.

The fuel value of sugar being about 1,800 calories per pound, the calories furnished by sugar, according to the per-capita consumption, amount to about 450 each day to every person in the United States. About one-fifth of the energy requirement is being supplied by eating sugar.

Perhaps the greatest harm accruing from the eating of sugar is that it supplants more important foods. Not

only do our bodies require energy, but the fuel must be of a character to furnish building material.

We need heat, but if we eat a preponderance of heat-producing foods, we shall in time run out of the elements that build tissue. People eating in this way will grow white around the mouth, the skin becomes blanched, and the doctors talk to them about anemia, bloodlessness, and taking iron tonics. Not many will ask about, or pay any attention to, the kind of food being eaten.

Those who are eating foods devoid of the elements that go to make up tissue will go to pieces. The tissues of the body must have framework—there must be cell salts and nitrogen; and sugar does not furnish either. What is it that makes the frame? Not sugar; but there is sugar in all material that helps grow the framework—namely, fruit and vegetables.

Rice is a very favorite food. It is about eighty-three per cent starch, and is potentially acid. Let those who have an acid state of the body from overeating on sugar eat much rice, and they will have an acid stomach very soon after eating. The acid poisons the blood, the oxygen-carriers are killed off, and the patient becomes anemic and cannot carry enough oxygen to keep alive.

There must be an intake of protein (tissue-building material) and salts, such as phosphates of lime, potash, iron, and other essential elements. There are other important elements that we do not understand quite so well—normal lipoids and vitamines, which are cut down about thirty per cent because of sugar consumption, and which would be supplied if, in place of sugar, we ate more of the vital foods.

The protein foods are tissue-building; they are nitrogenous foods. All meats of animals, nearly all grains, and dry beans and peas carry proteid. If fruit cooked with sugar is eaten with these foods, there will be devel-

oped irritation of the stomach, and those who eat in this way will soon not be able to take any food with comfort.

By cloying the appetite, sugar has a tendency to supplant other foods of greater value. People who eat much cake and pastry sooner or later become dysemic—the blood becomes impoverished and lacking in mineral elements, because such food does not furnish these elements.

The objection to sugar does not apply in the same degree to molasses and other syrups which contain the natural ash constituents of the plant juices. Molasses is potentially alkaline, but, on account of its being a by-product of sugar-making, the ash constituents may be so distorted that, instead of being potentially alkaline, it may be potentially acid. When molasses has been added to soils, it has caused an acid fermentation—this in relation to the question of its being used as a fertilizer.

Molasses contains the ash that belongs to the plant, and is so concentrated that it is rendered unfit as a food.

Most of the syrup placed on the market today is a by-product of sugar-making, and it contains a great deal more ash than is natural to it. The heat of cooking has changed its potentiality, as proved in using syrup as fertilizer. It always brings on fermentation when mixed with other fertilizers. It produces acidity of the stomach when eaten with bread or other starchy foods. Syrup can be used on cakes for breakfast, but if enough is eaten to overtax digestion, an acid stomach will follow. If the digestion is slow, sugar or syrup added to the breakfast will cause fermentation a few hours after breakfast. If there is catarrh of the stomach, it takes the digestive secretions and the food a good while to get together, on account of the walls of the stomach being covered with catarrhal secretion; the delay causes the food to be thrown into a state of fermentation. One reason why people with catarrh of the stomach should not have bread and sugar, or mush and sugar, in the same meal, is that

digestion is so slow that fermentation takes place. Especially is this true if the bread is yeast bread. Sugar and molasses are more or less topical irritants, and favor the building of catarrh.

An individual in health can walk off with a good, big breakfast, or other meal, of cooked fruit, sugar, and starch, and he can digest it without apparent trouble; but the sick man must have his food especially fitted to him. It would be impossible to write a book that would exactly suit all people. The sick must be coached into health by someone who knows how to adjust food to the most exacting demands. Books are for helping those who are well to stay in health. Those who have chronic diseases must be trained out of their diseases. It requires an expert dietitian, as well as psychologist, to lead a certain class of people out of disease into health.

Sugar is not digested in the stomach, but in the intestines. If digestion is slow in the stomach, and sugar is retained there any length of time, fermentation follows. Continue eating sugar under such conditions day after day, and irritation and inflammation are built; then ulceration follows, and later on cancer develops. That is one way in which a cancer is built.

When there is catarrh of the stomach, it is obviously impossible to get well and indulge one's self occasionally with sugar.

Stay away from sugar, and get the necessary sweet by eating fruits only. The sugar of fruit does not cause irritation. Pure sugar is an irritant to all mucous membranes, and is quite capable of preventing irritation, inflammation, and ulceration from getting well.

Put sugar into the mouth, and the mouth fills with saliva. The sugar causes mucus, as well as the secretions from the glands, to flow. The same condition is produced in the stomach when the sugar reaches that organ. It causes a great flow of fluid. Sugar bleeds the body—

it carries too much fluid from the blood-vessels; hence it is a form of bleeding. Those who cannot digest well, because of having too much fluid in the stomach, must be fed dry foods. Anyone in this condition will flood his digestive organs with secretions by eating sugar. So long as sugar is eaten, a cure is impossible in all diseases accompanied by a large secretion.

The carbohydrates include the simple sugars and all the substances which can be split into simple sugars by hydrolysis.

The simple sugars have one sugar radical in the molecule,* and are called "monosaccharids." Those containing two sugar radicals are "disaccharids." Starch and dextrin are of high molecular weight, each molecule containing many monosaccharids, and they are therefore called "polysaccharids."

The monosaccharids are glucose, fructose, galactose, and mannose. They consist of only one sugar radical in the molecule.

A water molecule consists of H_2O—two atoms of hydrogen and one of oxygen. A monosaccharid molecule consists of $C_6H_{12}O_6$.

The monosaccharids are simple sugar molecules which cannot be split by decomposition, digestion, or fermentation. The monosaccharids are absorbed as such. They are found in the blood of animals, and in fruit and plant juices. Grapes contain much in the form of grape sugar or glucose.

Glucose is also obtained through hydrolyzing starch by acids or by enzymes. This is the principal form in which the carbohydrates are taken up by digestion.

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*Molecule: the smallest quantity of a substance that can exist in a free state. A molecule may be chemically separated into two or more atoms. The integrity and properties of a substance reside in its molecules.

Sugar Enervates the Digestive Organs.—The starches are energy-giving foods, but they must be converted into glucose before they can be absorbed; and if they are not converted into sugar, they may as well not be eaten, for they will not be utilized as a food. When starch is digested, it is equivalent to eating sugar, plus this advantage over eating pure sugar, that the digestive and nutritive organs are exercised and the functions brought out. The digestive organs are made to work when starchy foods are eaten, whereas, in feeding simple sugar, there is little exercise of the digestive organs, and they become enervated from disuse. This is not all; everything of a nutritive character peculiar to the carbohydrate foods—such as protein, starch, oil, and, neither last nor least, cell salts—is excluded when pure sugar is eaten; for all the elements of the plant are excluded in making sugar. What are the mineral elements left out? Soda, magnesia, potash, iron, and others, all of which are as necessary to the organism as sugar—and more so, because the body can get on forever without sugar as sugar. All the sugar needed can be found in fruits and vegetables. The tissue-building material is taken in with the natural foods. The body cannot maintain health without potash, soda, lime, iron, etc.; for these elements are necessary in tissue-building. This is one reason why I advise, and am continually insisting on, the daily use of fresh, uncooked fruits and vegetables.

Those who live without raw fruit and vegetables, refined flour, bread, and meats, become dysemic; they are pale; their breath is bad; they not only lack iron in the blood, but they lack soda, potash, magnesia, phosphorus, etc.; they lack everything that helps a man stand up and look like health.

Disease is what people buy, paying with their health, for eating sugar, candy, cake, bread, meat, doughnuts, preserves, coffee, tea, and the foods ordinarily placed on

the family dinner-table. The people who eat in this way are those who often say that they cannot eat fruit—that fruit never agrees with them. When their eating habits are known, they will usually be found to be sugar-eaters.

When we have transgressed the laws of digestion just about so long, nature takes a hand and helps us kill ourselves.

Whenever a man is not happy a minute without his drink; restless without his cigar or tobacco; restless, nervous, and irritable without his customary supply of bread, butter, coffee, tea, candy, or other stimulants, nature is helping him kill himself, by taking away normal hunger and keeping him away from the foods that will save his life. This is where perverted nature gets behind and pushes us deeper and deeper into digestive troubles.

Sugar, as well as other stimulants taken to excess—eaten as a habit—brings about a state of the nervous system which will kill with disease in the course of time.

Starch can be looked upon as sugar; for when digested it first becomes maltose, then glucose.

In the body, glucose of the blood is constantly being burned and resupplied.

In diabetes the body fails to burn the glucose. It then accumulates in excessive amounts in the blood and escapes by way of the kidneys.

The body carries about a day's supply of glucose; but if starch and sugar are cut off, after twenty-four hours it begins to manufacture sugar out of its own tissues, and there is a gradual loss of weight until carbohydrate-eating is resumed.

It is all right to stop eating occasionally and use up the sugar as well as the surplus tissue. It is a fine way to clean house. It gives an opportunity to renew tissue and get a normal appetite and good health. When nature is given an opportunity, she reconstructs well.

If people who get down with typhoid or other fevers stop eating, take no drugs, and rest, they beat the disease, and the doctor too; but when fed and medicated, if they get well at all, it is by the skin of their teeth, and often they are left with organic diseases of the kidneys or some other organ. If the organs are left intact after such a siege, patients are often in better health than they were for years before, because they are thoroughly cleared out.

Disaccharids contain two molecules of sugar, and the compound is $C_{12}H_{22}O_{11}$. The principal sugars of this class are sucrose (cane sugar), lactose (milk sugar), and maltose (malt sugar).

Sucrose from cane or beets, as stated before, is made into sugar by evaporation.

There is a vast difference between the juice of the cane, and sugar. Every life-giving element is left behind in making sugar.

Alcohol is made from grain, but there is a vast difference between whiskey and corn bread.

Refined foods are the cause of much of civilization's sickness.

When people get pale, the doctors say they need to take iron or phosphates. The medical men seldom think of correcting the lives of the patients by giving them the proper food, but they send them away with a prescription calling for phosphates, and often something to make the heart a little more active. Drugs can do nothing; they cannot cure wrong eating and bad habits. The patients' habits must be corrected. If such patients would refuse to take drugs, and add fruit and a combination salad to their dinner menus, within a week they would feel better. The elements as found in drug stores are carried into the system in such a way that the body cannot assimilate them. If the body could utilize them—

take care of them—in that form, we could send to the chemist and get our food, and forget the grocer.

Man is not liable to overeat on uncooked grain. He can digest only a limited amount of raw starch; hence there is no chance for an oversupply of sugar. He would not eat for pleasure, if confined to plain foods.

By wrong eating, the teeth of the people are rendered incapable of chewing grain; hence all the grains are prepared by cooking. When whole grain is cooked, it is often forced upon a jaded desire by adding sugar and cream. If the dressings were left off, very little, comparatively, would be eaten.

After eating a full meal, most people could eat a dish of berries, if dressed with a little sugar and cream. They do not care for the berries, and cannot eat them unless dressing is added. Sugar becomes a menace to health by inducing people to eat without hunger.

Plain bread without dressing will not be eaten in such quantities as when it is dressed. It is the soft-food and sugar-eating, without appetite, that overtaxes digestion and produces fermentation. This builds an acid state, which often melts down the teeth. The acid, being so sharp, destroys the enamel, and the teeth decay. Almost without warning the teeth are ruined. The same constitutional derangement that builds adenitis and enlarged tonsils builds bad teeth. Of all dietetic enemies to those in this state, sugar is the greatest.

Overeating is the bane of society, and sugar is the principal persuader—the palate-tickler—that induces overeating.

Hot bread and cakes would not be eaten in one-third the quantities they are, if the sweets were left out of the meal. If the maple syrup and the butter are good, it is possible for people to order the third helping of hot cakes; whereas, if the sweet and fat were not ideal, one

serving of cakes would have satisfied natural hunger quite abundantly.

Sweets, puddings, tarts, cakes, and pastries generally, tempt the appetite. If we eat the right food—good, plain food—we cannot force ourselves to take more than we need.

There is harm in having a great variety, because it induces overeating. People eat all they want of plain food, and then they allow themselves to eat more because the desserts are made very tempting to taste.

The secret of overeating is that such foods as breads, puddings, macaroni, and their usual adjuvants, are tasty and attractive long after a sufficiency has been eaten. This tendency to please the palate with sugar and condiments not only forces overeating, but removes all desire for natural foods, and people who have given the subject of eating no attention will naturally drift into eating habits that create disease; for they will eat less and less of foods which depurate the system, and more and more of those that favor retention of waste and fail to furnish the vital cell-building materials.

A rational dietary, when once established, never drives to overeating and never drives to drink. Those who change from conventional eating to that which is more in keeping with life and health will, for a few weeks, feel that the prescribed foods are not satisfying them; and they are not, because they lack in stimulating qualities.

People who are taken from their stimulating foods go down in strength and lose weight. They feel enervated. They do not know that they were already enervated before they gave up their stimulating food; but they certainly feel their enervation since the change in diet. There is no difference, except in degree, between sugar, starch,

and other food poisoning, and that of alcohol and other drugs.

When the man who has tippled for years quits drinking for a week, he is thrown into delirium tremens. He was enervated before he quit drinking, but he kept that condition—the profound enervation—from coming into consciousness by his constant use of stimulants. Those who are food-poisoned—sugar-poisoned—are the same, only in a less degree. When the food-poisoned stop their overstimulating foods, and eat only normal foods, they begin to feel that they have no energy. They are really not losing ground—they are getting to a point where they can feel their normal condition. A time comes, if the treatment is carefully carried out, when the original strength all returns; but it cannot be brought back unless bad habits are given up entirely. Tippling or wrong eating must stop, and the victim must be willing to go down in weight and strength, and then come up again on the other side. The case is the same with food poisoning as with drug or liquor poisoning.

Cereals and starchy foods must be cooked; and then they are not palatable without dressings for those who have the sugar habit. When a pampered appetite takes foods that are prepared artificially and made to please, eating can continue long after needs are supplied. This is not true of natural foods.

Sugar Is a Deceptive Food.—Sugar relieves fatigue, furnishes heat—and that, too, at the least expenditure of nerve energy. But there is always something to pay. We cannot get something for nothing.

Those who have a driving desire for candy may take raisins, dates, or figs to supply that desire, and after a time they will lose their desire for sugar and candy.

Refined Foods Lack in Important Elements.—The refining of foods excludes the elements. These elements

can be substituted—most of them—but at the loss of energy from disuse of the organs of digestion.

Diabetes is becoming common. It is a disease caused by enervation and a one-sided eating. The disease will become more common as the people become more enervated from the use of sugar and other devitalized foods.

Athletes have proved that sugar gives them strength. Sugar has been given race-horses to advantage for the time being. It is said that the German soldiers have been supplied with an extra quantity of sugar, for the extra vigor it gives them. Anything that is capable of giving artificial strength for a time is dangerous, and should be used sparingly and understandingly.

The athlete is notorious for the rapidity with which he goes down when he ceases to be an athlete. We pay, and pay, and continue to pay, for everything unnatural and artificial.

The law of compensation is a jealous law, and it will not be imposed upon.

Sugar-eating belongs to the vanities of life. It is a habit—the more eaten, the more wanted; and, like all habits, in the end it gives more discomfort than pleasure.

When the desire is set upon anything excessively, the pleasure is killed by the excess. When one gets to craving sugar, sugar, sugar, nothing but sugar, the desire is built by the excess, and the condition is that of disease, and must be treated as such, and in time, or health will be ruined.

If a refined food be eaten—a food that does not represent more than one need of the body; a food the cell-building elements of which are left out in its refinement, as they are in the manufacture of sugar, and the digestion of which requires no effort on the part of the organism—power to digest is lost, because man's power to digest must be earned by the sweat of his face—by

work. When eating of refined foods, such as sugar, the body is furnished with heat—nerve energy—but its cell-life is not exercised in a way to keep up its power. Digestion must have work, because it is a law of nature that everything must earn its living—earn its life and power of continuance—by the sweat of its face. Saving the organism the labor of extracting the sugar from the sugar plant is allowing the nutritive function to drop down into idleness; and the result will be the same as with the pampered boy—it will not work except when it has to: when the body is fed with enough sugar to supply the heat demands of the organism, it will not digest starch. A piece of bread and butter will not be digested if eaten when enough heat is supplied by sugar. Nature—digestion—will not work on bread and butter when it can get sugar—when it can get the energy needed out of sugar without an effort.

Heat, like air, must be had at the price of labor. Incessant labor of breathing is required to procure the oxygen necessary. Heat must be bought by the great labor of extracting it from starch. Sugar, clothing, and artificial heat abridge labor and bring disease from lack of the developing influence of labor.

Starch will not be digested when the organism is not in need of heat. It will be left to ferment. And here is where we get fermentation—here is where we get starch poisoning.

Sugar does not supply the body with the elements of renewal.

Sugar is a crystalline substance obtained by evaporating the juice of the cane and beet, as well as of other plants; and, in the strictest sense of the word, it is not a food, any more than alcohol and wine are bread and grapes.

Sugar is freed from all other elements in the plant; hence it does not represent the plant from which it was

extracted, but it is an artificial product, the same as quinine is an alkaloid of the Peruvian bark, and caffein an alkaloid of coffee.

Sugar is a pure, isolated carbohydrate. It is not a perfect food, because it does not represent the plant from which it was taken. The water, fiber (cellulose, etc.), ash, nitrogen, gum, acids, wax, and fat are all removed.

In nature's chemistry all these elements are necessary to make a perfect food, and the labor necessary to extract the nourishment is required to retain digestive power.

Digestive organs that are furnished predigested foods are robbed of an opportunity to earn their bread by the sweat of their labor; and, besides, the refined foods do not furnish the many minor elements that are found in all vegetables and fruits, to say nothing about some that elude the chemist.

Unknown Food Elements.—There are food elements which cannot be discovered except by inductive reasoning.

It is unbelievable that the chemist will ever find everything in analyzing the human body. Analysis does not find electricity, life, or the subtle elements necessary to animation.

The elements in the crumbling mountain unite with the simple elements of the valley, and are blessed in that union with children—vegetables and fruits—which go forth sowing the seeds of life, health, and happiness to all mankind and animals who will utilize them and allow them to serve in a natural way.

What is the matter with the chemist's food? There is something lacking—something that eludes him. He cannot crucible it out, nor find it with a test-tube. The truth is that the chemist will never be able to make a perfect food. We hear it boasted that the time will

soon come when we can quit tilling the soil, and sit down, take our ease, and get our food from the drug store. But let us go back to the old law which says: "You have now become a man; go out and earn yourself a living, because the living you get in your father's house you cannot digest because you have not secured it with labor." The law is: We cannot get something for nothing. It was so with the manna which the children of Israel gathered in the wilderness. They had to work each day to gather the day's supply; they could not hoard it, for it spoiled. The order of nature is such as to head man off when he would get something for nothing. When man imagines he has beaten nature, he has only beaten himself. "Give us this day our daily bread" means: Give us a desire that will force us to get out and earn it. If it were given, without an effort on our part, it would poison.

The command to earn bread by labor is universal, and the demand is made of all life. It means that, if we would live and grow efficiency, we must labor. If metabolism, digestion, assimilation, and waste are to be carried on properly, food must not be used that fails to call out the energies of the system. If it is, nutrition lags from lack of labor, and, in addition to lost power, the tissues suffer from lack of those elements that have been excluded in the refining process.

Nutrition is governed by the same laws that obtain in social life.

Children who are pampered, spoiled, and not sent out into the world to earn a living, become drones, and in time will send parents to Old People's Homes or Poor Farms, while they, the children, eat of the tree of life without any power to digest.

We hear people talk about "retiring." What does it mean? It means to sit down and die; for I have never

seen a man retire who did not die in a very few years afterwards. Why not? Nature is through with him, whether he is ready to die or not. Whenever a man ceases to earn his bread by the sweat of his brow, nature is through with him; she uses him for fertilizer.

"Service" is to be the slogan of the intelligent of the future. The stupid custom, in well-to-do families, of bringing up children to know nothing about work must and will be a thing of the past, or such families will become extinct from degeneration. Health is coming to be the "summum bonum." The time is coming when it will be a disgrace to be sick. Then the importance of work for health's sake will be understood; then we shall cease to see women in middle life with muscles as flabby as in paralysis—unfortunate children of wealth who have not power to hold themselves together, and whose abdominal and pelvic viscera are dragging so low that modern medical science offers them no relief except surgery. The rational cure, of restoring lost tone through exercise and work, meets with no sympathy or approval from such people, because their wills for work are as flabby as their muscles. A spoiled human being is a disgrace to civilization—our boasted modern enlightenment.

Sugar favors the development of flabby muscles. It is a lazy man's food. It is in keeping with every phase of getting something for nothing, and comes under the universal ban—namely, sweat or die.

Nutrition will not work except when forced to do so. If sugar is eaten with bread or other foods, the sugar will be taken up first; and if the requirements for energy are satisfied when the sugar is taken up, the food eaten with it will ferment and cause digestive disturbance, and the products of the fermentation will be taken up and circulated by the blood, overstimulating and poisoning the system.

It should be obvious to everyone thinking on the subject that, when sugar is taken daily, a systematic starvation must follow; for the heat element—energy—is furnished the system without digestive labor; and when this requirement is satisfied, digestive urge is lost (the demand for heat being the greatest digestive urge), and the lesser wants will be crowded into the background. Besides this, the poisoning from indigestion will soon prevent the normal desires, so that in a short time all the demands of the body can be summed up in a desire for drunkenness.

A desire that sends a person off for a pound of chocolates is drunkenness. If it is continued, premature death is the reward. This is peculiar to alcohol, opium, and every other drug that enters the system for the purpose of controlling pain without removing the cause.

The local effect of sugar on the stomach is that of irritation. Those who have irritation of this organ should not take sugar except when it is mixed with other foods.

Concentrated foods, such as sugar and meat, when eaten heartily, tend to stagnate in the intestines and favor putrefaction. Sugar, and carbohydrates generally, cause a comparatively simple fermentation; but when meat is caught in the fermentation, it means putrefaction, and the system will be septic-poisoned.

When fruits, vegetables, vegetable fats, and carbohydrates decompose, the decomposition is a fermentation that produces discomfort, enervation, and the lighter forms of inflammation and fevers; but when meat decomposes, it favors the development of septic fevers and glandular ulcerations. Meat is capable of setting up a septic poisoning, whereas a fermentation from starch or fruit in the stomach is just a little distress for a time—it does not amount to much. When putrefaction is going on in the large intestine, look out for appendicitis, or

glandular trouble, and derangement of all organs. Putrefaction causes lumps in the groins. These are enlarged lymphatics. They are also found in the neck. When these enlargements take on the condition known as tubercular, they will sometimes be as large as hen's eggs. Decomposition favors the development of any disease for which there is a predisposition. If anyone has a predisposition for Bright's disease, he will develop that; but he must first have putrefaction, then glandular inflammation.

It would be well to confine the word "fermentation" to the change that takes place in carbohydrates, fruits, vegetables, and fats, and limit "putrefaction" to the change in proteids and allied substances. Meat and sugar undergoing fermentation develop toxins, which poison the body. Lymphatic involvement from this kind of poisoning leads to all manner of disease. A patient undergoing such poisoning from food, if bitten by a dog, or if an ulcer develops on the genitalia, will be in line for rabies or syphilis of the most virulent type, if he falls into the hands of the average modern medical scientist who is suffering from syphilomania.

It should be obvious why objections to having parents feed children sugar on the oatmeal are logical. Sugar will be taken up, and heat produced. This will continue until a lazy digestion is developed. The longer a child is fed in that way, the lazier the digestion becomes, until a time finally arrives when it has a state of fermentation of stomach and bowels all the time, and tonsilitis and adenoids are a natural consequence. If the child is fed much meat or eggs, it is in line for developing tuberculosis.

Such eating causes indican to form in the system. Indican in the urine means that there is putrefaction in the bowels.

Sugar is a one-sided food, its whole function being to serve as fuel—it boils the pot, but does not repair it. As the demand for sugar increases, there is a constant enervating influence going on in the system, and power to digest carbohydrates as natural food is lost. The blood becomes more and more dysemic—a state wherein the elements are lacking.

We get to the point where all starches disagree with us. People say: "We cannot eat starch, because it creates a fermentation." That condition can be cured by eliminating the artificial foods and substituting sweet fruits. People who are perfectly well may eat candy—they may have a meal of fruit and candy. People who are well may eat a pound of candy, and not die the first time they go on a sugar drunk. They have to repeat. The organism can resist disease-producing influences until sometimes we think there is no danger of making ourselves sick.

Sugar should be recognized as a luxury, and treated as such. Care should be exercised regarding the quantity consumed; the amount must be kept far below the system's requirements for fuel.

If we need only two thousand calories of heat in twenty-four hours, and we eat a half-pound of chocolates during the day, we have acquired two-thirds of the heat units necessary, and our bodies will not take the other third out of starch; for it is easier to get it out of fat and meat. And when we are not taking meat into the system, because of our sugar habit, it will consume what meat there is on our bones, and muscle gives way to fatty degeneration.

A pound of sugar furnishes about eighteen hundred calories, and the body requires about two thousand a day. Chocolate furnishes twenty-seven hundred heat units.

The sweet fruits are far better than sugar. Besides, the sweet fruits carry the very important elements that go to make up the tissues of the body. They furnish all the mineral elements besides the sugar. Those elements are left out when granulated sugar is made. Everything is taken away from the sugar when it is made from the beet or cane. Raisins, dates, and figs furnish fine eating for winter, because they furnish food as well as heat; they furnish elements for tissue-building. Raw fruits and vegetables furnish elements for cell-building; so we do not require a great deal of heavy food. During the summer time much food beyond vegetables and fruit is not needed. If hunger is great for meat once a week, it is all right to eat it. If one wants whole-wheat bread, it is well to eat it two or three times a week. What is coming to the people who are eating meat, sugar, and carbohydrates two or three times a day in summer weather? They labor to get enough air to oxidize their food. They are kept busy looking for a cool place; they are most uncomfortable, and are building future disease.

SPICES AND CONDIMENTS

The drug doctor recognizes spices and condiments as very important agents in increasing the appetite and aiding digestion. I have moved away from that belief the length of thirty years. The truth of the matter is that the fewer the spices and condiments entering the organism of man, the better. There is no need of any stimulants of any kind beyond what can be secured by eating good, nutritious food in the proper quantities. And, so far as increasing the appetite is concerned, no one has ever needed artificial aid, nor will he ever need such a thing. All that is needed to increase the appetite is to fast until a normal desire comes. It is said that the use of condiments increases the secretions of the gastric juice. Anything that will produce an abnormal secretion of the gas-

tric juice is injurious. Any gland that is whipped into activity is weakened. Overstimulation always leads to enervation. No one loses an appetite until he has abused his privilege of eating, by eating too much and bringing on an enervated state of digestion. Rest is the logical and rational method of cure.

Peppers.—Peppers are among the favorite condiments. There are three main varieties—the red, the white, and the black. If I should prescribe a stimulant under any circumstances, it would be pepper. Pepper is a real stimulant, while alcohol is a narcotic and depressant.

Mustard.—Mustard is used frequently in salads or on meats to whip a jaded appetite into taking more than there is a normal desire for. This is a very great mistake. A little mustard wrapped in a cloth and dropped into a foot-bowl of hot water, used as a foot-bath, will often give relief to headache. The external application of mustard, when handled properly, may give relief to pain, but it should not be used internally.

Cider Vinegar.—This vinegar may be used where limes or lemons cannot be had. It should, however, always be used in small amounts, and never with starch.

Horseradish.—I do not recommend horseradish, or sauces made of tomatoes. Of course, no special harm can come from the occasional use of any stimulant. The harm comes from the habitual use of stimulants and overstimulating foods, or from the use of foods in such a way as to force overstimulation—overeating or combining improperly.

FATS AND OILS

One-fifth of the weight of the body of the average individual consists of fat. It does not stand to reason that we can have a set amount of fat, or establish a general standard; for people all vary in weight, and espe-

cially in the amount of fat deposited in their bodies. The obese individual may have three-fifths of his weight in fat, and the very lean individual may have but one-tenth of his weight in fat. Hydrocarbons are supposed to be fat-producers as well as heat-producers. Perhaps the fat consumed finds a deposit in the body, but it is very probable that the fat consumed is used in warming the body—used as a heat-producer—and in this way conserves that already deposited.

Fats are emulsified in the intestines. As a food, butter stands at the head of the fats. Olive oil is a live second to the dairy product. There is a certain amount of oleomargarine used, and it may be that some people are compelled to use it because of inability to buy butter; but where oleomargarine sells at thirty cents, and the best butter at forty, it seems to me that the poorest individual should be willing to do with a little less of the real butter and use it in place of the substitute.

Cotton-seed oil is coming into general use for cooking purposes. There are a great variety of fats on the market made from cotton seed, all of which are good.

An indication of too great an intake of fat in a meal is to have an acid eructation which leaves a pungent, burning sensation in the throat. The juice of a lemon or grapefruit taken under such circumstances is the best and most certain relief. Those who eat too much fat, cake, pastry, etc., are justified in eating acid fruit before going to bed.

The use of fat should be limited to an ounce and a half to two ounces of butter, and two or three tablespoonfuls of olive oil, for a day's supply; the olive oil to be used on the salad, and the butter to be used on bread and to season cooked foods.

Cold weather makes a demand for fat. The Eskimo drinks whale oil; and he can take care of it because he

needs it. But it would be very much better for the Congoan to drink the juice of lemons than to eat fat. It has been the custom for years to feed tubercular subjects cod-liver oil, and to recommend other fats and oils; indeed, they are often urged by their physicians to eat all the fat they can. This is a dietetic mistake. From my point of view, it is almost impossible for an advanced tubercular case to emulsify any great amount of oil, and oil emulsions are liable to pass through the bowels unabsorbed.

SALTS

The mineral elements represented in the body are the chlorids, phosphates, sulphates, carbonates, fluorids, and silicates of potassium, sodium, magnesium, calcium, and iron. The thyroid gland carries a little iodin.

The function of the salts is to maintain the osmotic pressure. They are essential to cell-building. It is only recently that the profession is beginning to notice the importance of the salts in keeping up the health standard. For many years the disease known as scurvy has been recognized as resulting from a dietary deprived of fresh fruit and vegetables. But this, I note, has not been carried to any great extent in ferreting out the real value of fresh fruit and vegetables in maintaining a normal health standard, because of the tissue salts furnished.

Today there is a disease known as "acidosis." It is the same old scurvy, or scorbutus, of our fathers. The name "acidosis" lends no particular dignity to the disease, nor does it throw any special light on the real cause. Only recently one of the most prominent and internationally best-known pathologists died. He was an advocate of cooking all foods. Up to his death he had not appeared to grasp the thought that cooking destroys some of the very important elements in fresh fruits and vegetables—elements that go to neutralize the acids

which are common to metabolism, when the dietary is made up largely of the staple foods.

The ash or debris that is left from normal metabolism is acid. The fluids of the body, when in a normal condition, are potentially alkaline. This being true, anything that prevents elimination causes a backing-up in the system of acid excretions. A retention of the excretions I am pleased to call "autotoxemia." Where this condition is pronounced, there is a gradual neutralizing of the normal alkalinity of the blood and fluids of the body. This condition, when established, is known as "acidosis." Where the condition is light, it is not recognized as a light form of the old disease known as "scurvy;" yet this derangement, when once established, becomes the exciting cause of many diseases.

If foods carrying a goodly supply of the cell salts are taken into the organism daily; if fruit and vegetables accompany meat and bread—the more solid or staple foods—this tendency for an accumulation of acid in the system will not take place; indeed, it is the only way to keep up a normal balance, so far as the acids and alkalis in the body are concerned. I think it may be readily proved that almost all the diseases to which flesh is heir will be found originating in either an excess of acid or an excess of alkalinity. And one of the most important things in maintaining health is to understand which are the potentially alkaline foods and which are the potentially acid foods, and then have the combinations made so that there will not be a preponderance of either one or the other of these elements developing in the system.

Cooking destroys much of the potentiality of the base salts; hence, as important as cereals are, it would be well for them to be accompanied by fresh, uncooked fruit—not cooked fruit. Fruit may be used in the form of fruit salads, or in any way desired.

If, however, fruit is not desired for breakfast, it may be eaten at noon. Cooked cereals—oatmeal or corn-meal mush, farina, or any other—should be eaten with rich milk, no sugar. The dry, ready-to-eat breakfast foods are to be eaten dry. A little melted butter may be used as the pop-corn venders butter their corn, and the cereals should then be eaten dry, using no fluid until through eating; then sip hot water, teakettle tea, cereal coffee, or milk, as desired or according to need.

The noon meal, after such a breakfast, should be fruit—any fresh fruit. The dinner in the evening should be full; namely, meat or potatoes, cooked, non-starchy vegetables, and a combination salad.

Table Salt, or Chlorid of Sodium.—Many people imagine that common table salt is meant when something is said about the mineral salts. Chlorid of sodium, or common salt, is a compound of the elements soda and chlorine, and is found in the human body; but, like lime and potash, it must be prepared for the animal organism by the plants. Vegetation takes up these various elements and fits them for assimilation in the human body. The mineral salt as we find it on the table, the lime as we find it on the market or in the drug store, and potash as also found there, are the inorganic mineral elements that have not gone through the refining process; hence it is doubtful if they can become a part of the organism until they have gone through the vegetable kingdom and been prepared for assimilation by the animal body.

Salt in the system may be there as a foreign element; it may not be accepted as a chemical constituent of cell-building. It is just possible that the blood remains dysemic—lacking in the salt element—unless salt be furnished in an organized state, as found in fruit and vegetables.

CHAPTER VI

BEVERAGES AND STIMULANTS

WATER

THE amount of water in the human body must necessarily vary, but it is estimated at about sixty per cent. The human body has often been spoken of as the microcosm and the world as the macrocosm, and the proportion of water to earth in the make-up of the world is about the same as in the human body; namely, sixty per cent. Water is not looked upon as food by laymen, but it should be classed with food. It certainly is fully as important. An individual may live forty days without the ordinary foods, whereas he could not live beyond seven days without water. It would be easy enough for the individual to live that long or longer on the water that he would get out of the fresh fruits and vegetables, as most of these foods carry about ninety per cent water. The amount of water taken into the system by the average person amounts to from three to four pints, and about half that amount goes into the system through the foods. In the summer time more fluid is consumed than in the winter time, on account of the loss of water by evaporation and perspiration. Men who are working very hard consume more water, and, of course, they throw off more water through the skin and lungs.

Men who work in foundries, stokers, glass-blowers, and others who work in very hot rooms, consume a great amount of water, because they are compelled to sweat from the heat.

There are many mineral waters used for regulating the bowels. There are many springs which have the reputation of curing rheumatism and blood diseases. These waters are taken in large quantities. Where water is consumed beyond four to six pints a day, there is a tendency for a gradual development of a weakened digestive function. People suffering with deranged digestion under such circumstances can be cured by withdrawing the water and living on dry foods for several weeks. During the winter the skin becomes inactive. It is then that a greater amount of water is thrown off by way of the kidneys, and also the lungs. In all diarrheal subjects it is necessary to limit the supply of fluid. All diseases marked by discharge, such as catarrhal diseases, are made more active when the supply of water is beyond the normal.

The temperature of the water is best at about the temperature of the body. However, when in hot weather there is a craving for cold water for its cooling effect, I think it is proper for cold drinks to be taken, in moderation and at the proper time.

I think it a very great mistake for anyone to take a cold or ice drink within three and one-half hours after a meal; for it will stop digestion. In eating, great care should be taken not to wash the food into the stomach with a fluid of any kind. Thorough mastication cannot take place when fluid is being taken with food. Mastication should be finished—chewing should be deliberate and thorough, and the meal finished—before any kind of fluid is taken into the stomach. After a meal, and before leaving the table, as much cold water as desired may be drunk; but after leaving the table, when digestion has once begun, no more fluid should be taken for three and one-half to four hours. If, however, there is a pronounced desire that cannot be postponed, there is

no objection to taking warm water a little above the body heat. This will not stop digestion; whereas, if cold water should be taken, digestion stops until the temperature of the stomach is restored to one hundred degrees.

Ices are luxuries in which people are very much inclined to indulge between meals. If ice-water or these frozen foods are taken before digestion of the preceding meal has been completed, indigestion is sure to follow. Those with delicate digestion, or those who are troubled with catarrhal inflammation or chronic diseases of any part of the body, will find these derangements increased in severity after such indulgences. People who would get well of any bodily derangement must give up all pleasures and indulgences that favor the building of disease.

What should be the temperature of the water used in drinking? It may be hot or cold—not hot enough, however, to scald, and not ice-cold. Cold water should not be taken into the stomach within less than four hours after a hearty meal; and if the individual is troubled with indigestion, he should not take cold water at all until digestion is positively finished, which sometimes requires from five to five and one-half hours, and, in dilation of the stomach, twelve hours or more. People who have slight dilation will have slow digestion, and may require from morning until evening to take care of the breakfast, and then from supper time until breakfast time to take care of the evening meal. All who are troubled in this way should be careful about taking fluids into the stomach. Where there is a very great thirst, enemas of a pint of water may be taken often enough to control the desire for fluid. People suffering in this way should be very careful about taking too much salt, or anything that will stimulate thirst.

Rain-water is soft, and supposed to be the purest of natural water. It has a peculiar taste, and very few people like it for that reason. The fact of the matter is that people do not like pure water—they like water which carries a certain amount of mineral that will give it a little taste. What is called "hard water" is water that is more or less saturated with mineral. Wells in limy sections of the country furnish water heavily charged with lime. Such water is not good to drink for any great length of time. People living in such localities will be troubled with limy deposits in the body on account of drinking water heavily charged with mineral. It is necessary to secure as pure water as possible; indeed, it is necessary to secure as pure food as possible. Nothing should be taken into the body that is not as pure as can be had. Impure water is frequently credited with creating such diseases as typhoid, when the truth is that those who develop typhoid do so by outraging their bodies with improper eating and bringing on enervation from improper life generally. One quite common cause is enervation brought on from too much bathing during hot weather.

A great deal of distilled water is used these days. Some purify water by running it through charcoal filters. Porcelain cylinders are also in common use. Whatever the filtering agent, unless it is cleaned out and renewed frequently, it becomes a source of water contamination. Water carrying a great deal of surface matter—clay and other dirt, such as is found in rivers—may be cleared by adding a little alum. It is, however, doubtful if this is a good thing to do. It requires a very small quantity of alum to cause all the debris to settle. About fifteen grains of alum dissolved in a little water, and then poured into a gallon of river water and allowed to stand for twenty-four hours, will make the water as clear as a crystal.

Mineral Waters.—Those who wish to go into an extensive investigation of mineral waters should consult Cohen's "Physiological Therapeutics," Volume IX.

Space will not be given for the analytical tables of the various mineral waters. It would require a volume of considerable size to give a history of the different spring waters and their supposed virtues. There are waters that are alkaline, and others that contain acid, sodium, chlorid, bromin, iodin, sulphur, iron, and arsenic. The bitter waters are those containing much sulphate of magnesium. There are the aerated waters, such as the Manitou, etc. Iron water is hard on the stomach. Those charged with gas have a tendency to bloat the stomach and bowels, and if their use is persisted in for any great length of time, it will produce dilation of the stomach and bowels. Drinkers of fluids containing gas eventually grow very large abdomens.

Those who are troubled with constipation should not drink water. This is contrary to previous instructions, but growing experience has proven the error of water drinking as recommended by the profession generally and by myself. I have proven that constipation where there is undue activity of the kidneys cannot be cured so long as water is used between meals.

A properly selected diet requires no water. Those who eat as much fresh uncooked fruit and combination salad as they should, get from these succulent foods all the fluid the system requires. Water drinking to excess has been brought about by the conventional haphazard eating, namely, bread, meat, potatoes, pie, pudding, etc. The majority of cases of constipation will get well if the eating is in keeping with the teachings of our Food Books.

Enemas.—It is quite a common practice for people to resort to enemas to get relief from constipation. The enema habit is notorious for creating constipation. The enema should not be used except in emergencies, as when patients are very sick and must have relief from

impaction or from pain from intestinal indigestion, etc. Then copious enemas may be used until relief is secured. But to use enemas daily, simply to secure a movement from the bowels, is a very bad habit, and one that should not be cultivated.

For Constipation.—Many use mineral spring waters to correct constipation. These waters, however, like enemas, should not be used except in emergencies—should not be used except when temporary relief must be had—while other means are being used to bring about the re-establishment of the liver function and secretions that have to do with overcoming sluggish bowels. Constipation has many causes, but the most frequent causes are overeating—eating beyond the digestive capacity—and eating foods that have a tendency to distend the bowels with gas. This bowel distention leads directly to inactivity and constipation. Hence it is positively necessary that patients be taught how to live correctly; and in the meantime an innocent mineral water of some kind may be used to secure a movement each day until it is no longer necessary.

Water Cures.—There are water cures in different parts of the world. A certain amount of water cure is used by nearly all schools of healing. There is nothing so desirable with which to relieve suffering as a hot bath. The water should be as hot as the body can bear, and the patient should remain in the tub until relaxed—fully relieved. When suffering pain, sometimes it will require half an hour, or even three-quarters of an hour. When a long hot bath is to be given, the bathroom should be well aired, and the window and door must be open. Fresh air must be had all the time while taking a hot bath of long duration. Cold applications should be put on the head, and the patient should sip frequently of cold water. It is far better to relieve pain with a hot bath than

to use hypodermics or drugs which have the reputation of controlling pain. When relieved by a hot bath, there are no after-effects, and the patient feels all right the next day; but when relieved by drugs, the patient is usually sick from the use of the drug. Liver, stomach, and bowels are thrown out of commission, and it takes several days for the patient to get back to normal.

Towels moistened in cold water and wrapped about a limb that has been injured are one of the best simple remedies that can be used. What is known as the "wet pack" will relieve the pain of a sprain or an inflammation in any part of the body quickly and safely. In fevers the cold sponge-bath is the greatest friend that a patient has. In typhoid fever the spine should be sponged frequently with hot water, which should be followed with cold, and then with dry, open-hand rubbing. This treatment of the spine will secure rest and comfort, when otherwise a patient would feel very uncomfortable and have a restless night. By no means should such patients be given drugs.

TEA

I do not have very much to say about tea. I never recommend it, and always proscribe it. The use of tea favors the development of stone in the kidneys, gall-bladder, and other parts of the body. It favors hardening of the arteries—indeed, helps bring premature aging and all the diseases peculiar to old age.

COFFEE

Coffee, like tea, builds hardening of the arteries and high blood pressure. The constant use of hot coffee favors the development of irritation, ulceration, and cancer of the stomach. Coffee is not so inclined to produce premature aging as tea, but it helps develop a great many nervous diseases. Tea and coffee are doing more harm

to people than is generally recognized. Being in such common use, laymen naturally think that there can be no real harm in them. Unless evil symptoms follow immediately on the use of any poison, it is not considered poisonous. The majority of the people have little idea about the unfavorable effects of tea and coffee on health and life. I know of no occasion for the use of either of these, except when people are sick. When feeling very much exhausted and on a fast, a cup of tea or coffee may revive them for the time being; but to cultivate the habit of using either of these daily means lowering efficiency—lowering the health standard—favoring all the diseases that are peculiar to old age. There are people perhaps who will read this opinion of mine and declare that it is nonsense. It is very easy to denounce opinions, especially by those who do not know enough to have an opinion.

COCOA AND CHOCOLATE

Cocoa and chocolate as beverages are perhaps less harmful than coffee and tea; yet they carry into the system an alkaloid, theobromin, which is injurious to the nervous system. Both of these drinks favor the development of catarrh. Chocolate is especially harmful to those who have catarrh, hay fever, asthma, or catarrh of the stomach and bowels It increases the discharge—in fact, increases all symptoms. Those who feel disposed to take either of these drinks as a table beverage should be quite sure that they have no catarrhal derangement of the system; for if they drink it under such circumstances, it will increase the trouble.

I do not recommend any table beverage except hot water or teakettle tea: one-third milk, two-thirds boiling water, and a little sugar.

ALCOHOL

Yeast and sugar in combination produce fermentation, and alcohol is the result. The glucose contained in fruits is fermented into alcohol, while the starches, as found in the potato, corn, etc., are first converted into dextrose and then maltose; then, by adding diastase, alcohol fermentation takes place. The value of alcohol as a food and medicine has long been discussed. Doctors, chemists, and the people generally have been divided in their opinions. Some believe in alcohol as medicine, others as a food, while still others look upon it as a poison. I belong to the latter class. There is no place for alcohol at the table, nor as a therapeutic agent. Alcohol is not a stimulant—it is a depressant. The alcohol habit is grown because of its anesthetic properties. It blunts sensation. All stimulants relieve nerve tension, irritation, and pain. This is where the danger in the use of alcohol lies. Anything that causes a dulling of sensation to feeling is capable of producing a habit—a longing for the drug influence. The first drink of alcohol, be it ever so small, is felt very quickly in the brain—almost as soon as its warming sensation is felt in the stomach. This is a poisonous influence; and where the influence is repeated, the organism becomes accustomed to it—and not only becomes accustomed to it, but there is an appetite set up that requires more and more to satisfy it, until the individual is a full-fledged inebriate. This is the way that all drug habits are developed. The effect of alcohol on digestion is to retard the digestive process. Some authors declare that in small doses it increases the digestibility of protein. It is possible that, where there is a sensitive state of the stomach which interferes with the normal secretion of the gastric juice, if anything is given that partially anesthetizes the nerves, relief from the irritation is secured, and, as a result of the relaxation,

more secretion is thrown out. This increase in digestive secretion is, however, brought about at a tremendous expense; for the system will soon drop into the habit of waiting for the drug influence.

Man is largely made up of habits. It is as easy to establish bad habits as good habits. When either good or bad habits are developed, it requires an effort to overcome them.

Our Cook Book

Our Cook Book

INTRODUCTION

Ever since I started to write "A Stuffed Club"—the worthy predecessor, with a quixotic title, of "Philosophy of Health"—there has been a continual and insistent demand for a Cook Book. Not being a culinary artist, nor an adept at compiling menus for epicures, I have hesitated to assume the responsibility. The responsibility, however, is not so great for what I shall offer in the following pages as for what I shall not offer. Those who know me, and who have kept in touch with my work, will not expect more than I here present. But the strangers who, in their search for a spur with which to put a little fresh ambition into a jaded appetite, by accident pick up "Dr. Tilden's Cook Book," will turn away with disgust and declare it an epicureans' Sahara, without an oasis. To all such I have only this to say: If you would renew your youth, increase your efficiency, and live out your life's expectancy, do not hesitate to enter this desert without bag and baggage, take with you the following rules, and observe them to the letter:

Rule No. 1: Never eat unless comfortable in mind and body from the previous meal—or meal time.

Rule No. 2: Never eat without desire and a keen relish for the plainest and simplest foods; and not then, if to do so will cause the breaking of the first rule.

Rule No. 3: Avoid overeating. This is best accomplished by observing the fourth rule.

Rule No. 4: Thoroughly masticate and insalivate all foods.

A word of caution: Those who are sick can build more sickness if they ignore the four rules. It is not enough to eat properly prepared and properly combined foods; it is necessary to go to the archives of antiquity—back to primeval man—and be guided by the rule of "No hunger, no food": simple eating, and only when there is desire.

The present-day food drunkenness is made possible by commerce, which places all the tempting foods of the world before our eyes daily.

Hunger has been converted into appetite—food drunkenness. Which means that commerce has placed before our eyes tempting foods; gastronomic experts have forced eating by their skill at juggling with the world of condiments; and the conservers of health—the physicians—have skilfully held up and flailed every impotent desire with the aphrodisiacs known only to those skilled in that alchymistic lore denominated "modern medical science."

Appetite is the composite name for all the ills to which flesh is heir; and this simple little Cook Book, and the four accompanying rules for eating, are offered as a "Catholicon Simplex."

MEAT

Many people are sick because of lack of nourishment —lack of certain elements; not because they do not have enough, or a large enough variety, of food-stuffs, but because the protein of meats is rendered indigestible by improper cooking. Why should people not go to rolls, butter, and coffee, when they do not know how to prepare meat and vegetables fit to eat?

BEEF

Beef is at its best roasted; but to retain all the flavor, and render the albumin and gelatin tender and easily digestible, it should be roasted in quantities. A small roast is usually too dry. When barbecued, beef reigns king of all meats; for the larger the quantity cooked, the better the flavor; and the flavor is a necessary adjunct to digestion. Food must smell and taste good; for the stimulation of the nerves of special sense is necessary to excite the secretion of digestive fluids.

Pot Roast.—This style of cooking is well suited for small families. Put the roast to cook in a small amount of cold water, and allow it to come to the boiling-point very slowly; then turn the gas down, if cooking with gas; or, if on a coal range, place the vessel on a part that will keep the contents simmering. Just enough water should be used so that, when the meat is tender, it will all be evaporated; then place the vessel on a hot part of the stove, and brown the meat for five or ten minutes. If by mistake too much water has been used, the meat can be lifted out, put in a baking-pan, and placed in the oven for browning. The fluid from which the meat was taken may be used as a soup or broth; or it may be used to dress cooked vegetables in place of butter or cream.

Jacket Roasting.—Roasting in a jacket is a good way to prevent the meat from drying out. Make a batter of flour and water. The batter should be stiff enough to coat the meat well. After giving the prospective roast a thorough coating, wrap paper around it, and then coat the outside of the paper with another layer of the batter. Roast the regulation time, adding a little extra on account of the jacket

Steak.—As in the case of roasts, the larger and thicker the steaks, the better. Only the expert can cook and deliver to the epicure a perfect steak. Butchers' lives are made a weary dream by food vandals. Because the vandal cannot fry steak cut a half-inch thick, and make it taste equal to the two- or three-inch loin, deftly broiled on a charcoal broiler by a chef whose specialty is preparing one-fifty to three-dollar steaks for voluptuaries, the meat-cutter is blamed. The inefficient always know who is to blame for their failures.

How to Pan-broil Any .Meat.—All broiling meat should be cut at least one inch thick; the thicker the better—even two and three inches. But to cook meat so thick requires a proper fire and an expert cook.

Have the broiling-pan hot—hot enough to sear; then place the meat in the pan, which, if hot enough, will turn the meat white at once. The meat should be turned almost instantly. Turn it from side to side three or four times, and at the same time, if cooking with gas, extinguish the flame long enough for the pan to cool down to a heat that will cook, but not sear; then relight the gas. If cooking on a coal range, move the pan to a cool part of the stove, and keep the meat simmering, so to speak. Finish cooking with enough heat to cook the inside of the meat without hardening the albumin. In broiling, the object is to sacrifice the outside of the meat

—harden the albumin of the surface of the meat—but keep the inside soft and juicy.

When meat is properly broiled, it swells, and, on cutting, the liquid flows readily; but if cooked too much or too rapidly, with too much heat, the albumin coagulates, and the meat will be hard and tough; even veal, lamb, and a young chicken will be disappointingly hard and dry. There are people who will have dressing.

Maitre d'Hotel Butter

¼ cup butter	½ saltspoon pepper
½ teaspoon salt	1 tablespoon chopped parsley

Juice of one lemon

Rub butter to a cream; add salt, pepper, parsley, and lemon juice. Spread on hot beefsteak.

Broiling over Coals.—Clasping in a wire toaster and holding close to a bed of hot coals is a very nice way to broil meat. If the steak is quite dry cooked in this way, because of its thinness, a little butter should be added.

Hamburg Steak.—Hamburg steak should be carefully cooked, following the hints given for other steaks. The principal thing is to have a hot skillet and turn quickly. There is a way to cook a Hamburg steak that many like: Put to cook in a very small amount of water, and then, when the water evaporates, allow the meat to brown a little. Milk may be used instead of water.

Stew.—A beef stew should be put on in cold water and allowed to cook very slowly. Too much heat will harden the meat. The broth may be used to season the vegetables.

Round Steak.—Round steak, cooked as follows, is quite palatable: Put into a very hot frying-pan and thoroughly sear; then allow it to stew by adding a small amount of cold water. The cooking, until the meat is

tender, should be by a simmering heat rather than hard boiling. When tender, take up on a hot plate, cover, and place in a warming-oven. There should be only a small amount of fluid in the pan when the meat is taken out. This may be disposed of in various ways. Some people add a little flour and make a gravy, to serve with the meat; but I do not recommend this. Cooked tomatoes or onions may be added; serve on the meat. If the cooking is done well, the meat should be tender and tasty. If carefully manipulated, the fluid can be gauged so as to be cooked away by the time the meat is tender; then, if desired, the surface of the meat may be browned the second time.

Beef Loaf

3 pounds chopped beef	½ pound salt pork
1 egg (large)	3 tablespoons cream
1 lemon (small)	½ onion

Chop beef and pork; mix with juice of lemon, one-half onion, one and one-half teaspoons salt, a little pepper, and the cream. Pack in loaf tin, put small piece of butter or bacon on top, and bake one and one-half to two hours. Veal may be substituted in place of beef, if desired.

Bouillons.—Bouillons are prepared by running lean meat through the meat-grinder. To a pound of meat add a pint of water, heat slowly for thirty minutes, then boil hard for five minutes, and strain through a cullender.

Broth.—Broth is prepared much like bouillon. Grind one pound of lean meat and put it to cook in a quart of cold water. Heating must be gradual, and the boiling-point reached very slowly, after which only simmering should be allowed. When the cooking is done properly, the meat is jellied, and should be eaten with the broth. When the cooking is pushed too rapidly—when the heat is too great—the albumin, which is the principal nutritive

element in meat, is solidified and precipitated, leaving a liquid that is often served to the sick as beef tea, but which contains little more than soluble salts, and is toxic rather than nutritive. If desired stronger, use a pint of water instead of a quart, and add hot water to make up for evaporation.

PORK

The digestibility of pork depends a good deal on the cooking. Fried pork is neither better nor worse than any other fried food. If a family is not prepared to cook properly, and frying is necessary, or desired, the cooking should be manipulated in the best way possible with the conveniences at hand.

Steak.—Place the meat in a hot skillet—have the cooking-vessel very hot—then in a few seconds—almost immediately—turn it, and turn again, once or twice, in the same way. As fast as the grease fries out, it should be poured into a vessel used for drippings. Prevent the meat as much as possible from cooking in the grease. A wire netting can be made to fit the skillet and set up off the bottom for a third or a half inch, thus allowing the grease to drop through. By keeping a well-fitting cover on the vessel after the meat has been placed on the netting, the meat can be broiled, which style of cooking is superior to frying.

Roast.—Roast pork may be cooked in the usual way, or it may be cooked in a paper sack or a batter (flour and water) jacket. (See directions for beef roast for jacket.) Pork cooked in this way is especially fine.

Stew.—Pork ribs, or backbones, stewed tender, are a food that most people like. This meat, cooked in a steam cooker, is made very tender, tasty, and wholesome. The cooking should be prolonged until the meat has

reached a state of tenderness that will allow the bones to drop out.

Pork and Kraut.—Cook the meat and kraut separately, and serve together if desired. Drain the kraut from the brine, and cook thoroughly, with a slow fire. Any form of cooked pork may be used.

VEAL

Veal from an animal sufficiently matured is tender, digestible, and, when cooked well, is pleasant to eat.

Roast.—Veal may be roasted the same as other meats—the usual way—or in a jacket.

Cutlets.—Brown whole-wheat flour thoroughly, roll the meat in it, and fry in a very little butter or olive oil. This style of cooking is not desirable, and only those who are very well should eat meat prepared in this way.

Broil.—Veal may be broiled, and this style of cooking, if properly done, is very pleasing to the taste.

MUTTON

Chops.—Cut away the tough outside skin, trim off a part of the fat, and broil the same as steak; namely, for about one minute, close to the coals, turning about six times; then finish the cooking farther away from the fire. Time required: four to six minutes, if the meat is desired rare. No butter is required on chops, as they are quite fat enough, and none on steak unless it is very dry, and then it should not be dressed with butter until cooked.

LAMB

Chops.—Lamb chops should be broiled the same as mutton chops, except that they should be cooked thor-

oughly—well done—instead of rare. All young meats are cooked until well done, which requires from eight to ten minutes. Of course, the fire has much to do with the time required. Poor meat, poorly served, is quite conducive to the building of vegetarianism—causes the giving-up of the meat habit.

Pan-broiled Chops.—For mutton and lamb chops, pan-broiled, carry out the instruction given for pan-broiled steak—a high degree of heat to sear, then lower the temperature.

Roasts.—Pot roasts and regulation roasts of mutton and lamb are to be made the same as those of beef. Mutton and lamb are not to be eaten by people who have diarrhea or intestinal indigestion. For sick people the fat must be cut away from the meat. If, however, only the lean of the meat is used, and it is well broiled, no increase of the bowel trouble will be experienced.

Lamb Stew with Vegetables.—Cut the lamb up into small pieces, and stew until tender, without seasoning. Take several kinds of vegetables, such as carrots, turnips, cabbage, celery, parsley, onion, and potato. Cut up fine, and cook together until thoroughly tender. The potato should be cooked until it goes all to pieces, so as to thicken the stew in place of using flour. When the vegetables are tender, season. Season the lamb, and pour over it the cooked vegetables. Let stand in a warm place for a few minutes, and serve. Use very little water no on the vegetables when cooking—just enough so that the potato will thicken it nicely. (Mrs. E. A. Van Deusen, Charlotte, N. C.)

FISH

Baked.—Prepare by washing and wiping dry; then lay a greased paper in a dripping-pan or an ordinary baking-pan. Lay the fish on cotton gauze with which to lift it out of the pan; or the fish may be placed on the greased paper without the gauze lifter. If the fish is free from fat, add a little butter: to a half pound of fish, half of an inch cube of butter; if the fish weighs a pound, use an inch cube of butter. Salt and lemon juice are to be added to please the taste.

Fish may be baked in a jacket, the same as recommended for meat. This plan is good, and fish cooked in this way is delicious.

Broiled.—To broil fish, proceed as with meat. Clasp the fish in a wire holder, and hold it close to the fire until the surface is hardened, as in broiling steak; then hold it far enough from the fire to cause the flesh below the surface to cook, but not dry out. If the broiling is successful, the fish will be juicy and thoroughly cooked. Dressing should be the same as for baked fish.

Fish may also be broiled in water. Have a pan of boiling water ready, and place the fish, such as salmon or halibut steak, cut fairly thick, into the hot water. Then turn the fire low enough so that the water will not bubble or boil. Allow the fish to cook until tender, and lift out with a broad utensil of some kind. Dress with butter, salt, and lemon juice. The fish may be placed in the water on a piece of white gauze, and lifted out on the cloth when thoroughly cooked.

To Serve Canned Salmon.—Place a can of salmon in hot water and boil until well heated through. Open, and serve on hot platter with butter, salt, and lemon juice.

Timbals of Salmon.—Remove bone, skin, and oil from one can of salmon. Add gradually, beating all the time, four tablespoons of cream, the unbeaten whites of two eggs, salt, and pepper. Fill small cups with the mixture, and place in a baking-pan half full of hot water. Bake twenty minutes.

Salmon Loaf.

1 can salmon
2 egg whites
Lemon juice

Remove bone, skin, and oil from one can of salmon. Add beaten eggs and lemon juice. Mold in loaf. Bake in hot oven about twenty minutes.

Finnan Haddie a la Delmonico.—Cut fish in strips (there should be one cup); put in baking-pan; cover with cold water. Place on back of range, and allow water to heat to boiling-point. Let stand on range, keeping water below boiling-point, twenty-five minutes. Drain and rinse. Separate fish in flakes; add one-half cup of cream and four hard-boiled eggs, thinly sliced. Season with butter and lemon juice.

Hollandaise Sauce for Fish

Yolks of 3 eggs
½ cup melted butter
Dash of red pepper
Juice of 1 lemon
1 tablespoon vinegar

Cook in double boiler until thick. Will serve ten.

OYSTERS

The albumin of oysters can be made hard and unfit to eat by wrong cooking. They should be cooked in a low temperature—from 160 to 180 degrees Fahrenheit is the cooking temperature for albumin.

Raw.—Raw oysters may be dressed with salt and a little black pepper, if desired; also lemon juice.

Roasted on Half-Shell.—Wash the shells with brush; then put in wire broiler over glowing coals—the round part of the shell down, so as to hold the juice. Cook quickly; turn once or twice until the shell opens. They may be cooked on either gas or coal range. When done, remove the upper half-shell.

Broil.—A splendid broil may be conducted as follows: Fill a metallic, earthen, or tile dish with hot gravel. Place the oysters, in their shells, on the gravel, and cover. Turn once when hot. When cooked, lift off the upper half-shell, place the dish containing the gravel and cooked oysters in a silver container—pudding dish—or pin napkin around the dish, and serve on a dinner-plate. Oysters cooked in this way should be cooked in individual quantities. The oysters should be kept hot until eaten. Dress with salt, butter, and lemon; a dash of pepper if desired.

Pan Roast.—Put in a sauce-pan or chafing-dish, and gently stir with spoon. When the oyster grows plump and the edges curl, remove from heat. Season with salt, butter, and dash of pepper; serve with combination salad.

A double boiler may be used—an oatmeal cooker. Place the oysters, with their liquor, in the small boiler; have the large boiler filled two-thirds full of water at a

temperature of 150 degrees. Be careful not to cook too long; for, if the albumin is made tough by too much heat, it is rendered indigestible.

Stew

1 quart milk	1½ pints oysters

Put the oysters, with their liquor, in a double boiler, and heat through thoroughly. Have the milk hot, and drop the oysters into the hot milk, but do not cook the two together. Season with salt, pepper, and butter.

Soup

1 quart oysters	Sprig of parsley
4 cups milk	Bit of bay leaf
1 slice onion	1/3 cup butter
2 stalks celery	Salt and pepper

2 blades mace

Clean oysters, reserving liquor; add oysters, slightly chopped. Heat slowly to boiling-point. Strain through cheese-cloth. Scald milk with onion, celery, mace, parsley, and bay leaf. Remove seasonings, and add oyster liquor. Season with salt and pepper.

French Oyster Soup.—Same as oyster soup above, adding yolks of two eggs, slightly beaten, just before serving.

Cream of Clam Soup.—Make same as French oyster soup, using clams in place of oysters.

EGGS

Soft-boiled.—Eggs, being albumin, should not be cooked in boiling water. Eggs are best cooked in the shell, as follows: Place the eggs in boiling water, remove from the fire, and allow them to stand for eight or ten minutes. If the eggs are very cold, they should be left in the water from two to four minutes longer.

Hard-boiled.—To cook eggs hard, place in cold water, and allow the water to come to the boiling-point; then place on the back of the stove for twenty minutes. Do not boil.

Egg Broth.—When meat cannot be had, a broth may be made from eggs. Heat four tablespoons of water to the boiling-point, remove from the fire, and stir in a previously beaten egg. This broth may be made of the white exclusively. Season to taste with salt and a little butter or cream.

Egg-and-Beef Broth.—One cup of hot beef broth, one egg, and salt sufficient. Beat the white and yolk separately. To the yolk add gradually the hot broth, stirring continually. Add the salt, and stir in the well-beaten egg whites. Reheat, and serve very hot.

Steamed.—Break an egg in a sauce-plate previously heated and buttered enough to keep it from sticking to the plate; place in a steamer over boiling water, and cook until the white is firm. Salt and butter slightly.

Scrambled.—One tablespoon of milk, half cream, to each egg; beat thoroughly, and put in a buttered pan; then place this pan in another containing near-boiling water, and stir until the eggs are cooked to the desired consistency; then salt to taste.

A double boiler is convenient for cooking scrambled eggs. Have the water hot, but not boiling. To boil eggs hardens the albumin and causes them to be indigestible.

Poached in Milk.—Melt butter, a half of an inch cube, in half a teacup of hot, rich milk, in a double boiler; put in two to four eggs, and cook carefully, not allowing the water to boil in the boiler. Salt and pepper to taste.

Omelet

6 eggs	6 tablespoons milk

Beat the whites and yolks separately; salt and pepper to taste; add lastly the whites of the eggs, beaten light. Put into a large spider, when hot, a piece of butter the size of half an egg, and, when melted, pour the eggs into it. When cooked in the middle, turn one-half over the other and slip on to a hot platter. Serve at once.

Individual Omelet.—Beat white and yolk of egg separately. Mix pinch of salt and one tablespoon of water with yolk. Stir into hot buttered skillet. Let set and brown. Set in oven to dry. Fold and serve. (M. S. Starr, Woodbury, Conn.)

FOWL

Broiled Chicken.—To broil: singe; wipe with a damp cloth; then with a sharp knife or game shears split the chicken down the back, beginning at the back of the neck and cutting through the backbone the entire length of the bird. Lay the bird open and remove the contents. Cut through tendons or joints, and wipe thoroughly.

Boil ten to thirty minutes, depending on size. Serve on hot plate, and eat with fresh fruit, or jellies, and cooked, non-starchy vegetables. Instead of fruit, eat the chicken with any combination salad, and dress the salad with salt, olive oil, and lemon juice, or salt and lemon juice. Fruit and vegetable pickles may be added to the meal.

For best digestive results, season only after serving, and eat with combinations suggested.

For those who live for pleasure and whose jaded appetites must have stimulation, the bird may be seasoned with salt and pepper, as much as desired. Rub thickly with softened butter, and dredge with flour; broil; serve on hot buttered toast, and garnish with toast points. Bread, butter, jelly, and potatoes in any form desired; etc., etc.

Roast Chicken.—Cut chicken as for serving. Wet each piece. Cut small pieces of salt pork, and place in bottom of roaster. Place cut-up chicken on top of pork. Put in enough water to cover bottom of roaster. Put cover on roaster, and roast until chicken is tender. More water may be added, if needed. If not browned enough, remove cover from roaster one half-hour before serving.

Chicken Loaf

1 chicken	½ ounce gelatin
2 or 3 hard-boiled eggs	Salt and pepper

Boil chicken until meat leaves bone. Remove from liquor. Pick up, keeping dark and light meat separate. Take three cups of liquor, and add gelatin soaked in cold water. Stir until gelatin dissolves, but do not let it boil. Place slices of hard-boiled egg in bottom of mold. Pour in layer of jelly. Let set slightly; then fill mold with alternate layers of light and dark meat, pouring in a little jelly well seasoned with each layer. Set away in cool place to harden.

Digestibility of Various Forms of Cooking.—Steamed meat is easy of digestion. Broiled meat is appetizing, but not so good for those with very delicate digestion. Stewed meat is easy of digestion. Pot roasts are especially fine when cooked in very little water and well browned.

SOUP

Vegetable Soup.—Take equal parts of four or five of the following vegetables: potatoes, turnips, kohlrabi, carrots, parsnips, cabbage, spinach, onions, okra, salsify, green peas, corn or beans. Run the vegetables through a vegetable mill, or chop very fine. Put to cook with enough water to prevent burning, and, when tender, reduce to the consistency of soup by adding boiling water. Season with salt and butter. Those in full health may use hot milk to reduce in the place of water.

Cream of Tomato

1 pint tomatoes, strained
1 cup milk
1 cup cream

Put tomatoes in double boiler and, when near boiling-point, add one-half teaspoon of soda. Add milk and cream (hot) to tomatoes, and season with salt and pepper; or drop cream and add one cup of broth.

Cream of Corn

1 can corn
1 tablespoon flour
1 cup milk
1 tablespoon butter
1 large onion

Cook corn and onion until tender. Press through sieve. Melt butter in pan, rub in flour, and then add milk, heating slowly. When thoroughly thickened, add corn and onion, and about a half-cup of meat stock. Just before serving add a little cream to each bowl. If not thin enough, add more milk. (Mrs. E. E. Gantz, Denver, Colo.)

Cream of Pea or Celery.—Use the same proportion as for the cream-of-corn soup, substituting peas or celery in place of corn.

Potato

6 medium potatoes	1 stalk celery
1 small onion	1 quart milk
1 tablespoon butter	

Boil potatoes, celery, and onion until tender. Cut potatoes in slices, or mash. Add boiling milk, butter, and salt and pepper. Serve hot.

Cream of Spinach.—Pick, wash, and boil enough spinach to measure one pint after cooking. Add to this one quart of milk heated in double boiler. Let boil up, then rub through a strainer. Set over fire again, and, when on the point of boiling, mix with it one tablespoon of salt and a little lemon juice. One tablespoon of cream may be added to each bowl of soup. (Mrs. H. J. Lehman, Denver, Colo.)

Impromptu

1 pound round steak (ground)	1 can tomatoes

Stew together, and eat with celery as a thick soup or stew. This dish can be quickly prepared and is very tasty. (Mrs. T. J. Hauptman, Chicago, Ill.)

VEGETABLES

Non-starchy Vegetables.—Beets, turnips, carrots, parsnips, summer squash, cabbage, cauliflower, Brussels sprouts, green corn, green peas, string beans, asparagus, onions, egg plant, salsify, okra, kohlrabi, endive, lettuce, tomatoes, cucumbers, celery, chard, spinach, dandelion, and all plants used as greens.

The use of the word "non-starchy" is purely arbitrary, for there is starch in all vegetables, but it exists in relatively small proportions in the so-called non-starchy vegetables.

Decidedly Starchy Foods.—Every preparation made from the grains—wheat, rye, oats, barley, corn, rice; also the Irish and sweet potato, dry beans and peas, tapioca, sago, peanuts, chestnuts, bananas, Hubbard squash, and pumpkin. The last three items listed have a decided tendency to ferment. Those who are troubled with souring of the stomach should not eat them.

Non-starchy Vegetables.—Prepare the vegetables in the usual way, and put to cook in just enough water to prevent burning. When properly cooked, the water should be practically all boiled away. What water remains should be a rich juice, and should be served with the vegetables. Positively no seasoning is to be added to any food until served; then each person should season to suit himself, with salt, and butter or cream. Do not use flour, or starch dressings, or so-called cream dressings. The cooking-vessel should have a tight-fitting cover. A double boiler may often be used to advantage; it minimizes the danger of burning. Steam cooking is an ideal way, and the fireless cooking is said to give satisfaction. When the double boiler is used, little, if any, water is needed. The more nearly vegetables are cooked in their own juice, the better.

Beets, turnips, carrots, parsnips, summer squash, cabbage, cauliflower, Brussels sprouts, green peas, string beans, asparagus, onions, egg-plant, salsify, okra, kohlrabi, etc., should be cooked as above.

Green Corn.—Long boiling is not necessary for green corn. It should be put to cook in cold water, and, when the boiling-point is reached, allowed to cook for five or seven minutes longer.

Endive, lettuce, tomatoes, cucumbers, and celery are better eaten raw. They are killed as a food when cooked.

Vegetable Potpourri

6 or 8 okra pods	1 small head cauliflower
6 or 8 small onions	6 or 8 medium-sized carrots

Break cauliflower into buds; leave okra whole; quarter carrots, lengthwise. Steam all until tender. Dress with cream or butter, and serve. Other combinations may be used in the same way. Big, green Lima beans and green corn are fine; also tomatoes, okra, and onions. (Mrs. A. R. Gunder, Brownstown, Ind.)

Spinach or Other Greens.—Thoroughly wash and rinse. Place in hot cooking-vessel, and stir until the leaves are wilted. Do not add water. Enough juice will exude to almost, if not quite, cover the vegetables. Allow them to cook slowly in their own juice. When served, season with salt and butter; or salt, olive oil, and lemon juice. Care must be used not to cook on too hot a fire. Cook slowly; otherwise the vegetables will be dry, and unfit to eat.

When cooking with gas, it may be necessary to add a little water; but avoid adding too much. Use asbestos mats enough to prevent burning.

Potatoes.—Potatoes should either be boiled with the jackets on, or baked.

Dry Beans and Peas.—These two foods are ruined by the practice of soaking overnight, and then throwing off the water in which they were soaked, and cooking in fresh water. In soaking, the soda is thrown off with the water, and the alkaline potentiality of the food is destroyed. These two starchy foods should be soaked overnight and cooked in the water in which they were soaked. No seasoning should be added until thoroughly cooked.

Pork and Beans.—The beans should be thoroughly cooked, as directed above. Strips of bacon should be cut up into small pieces and cooked. The juice of the meat should then be poured over the beans, and the small pieces of meat mixed with the beans; but no cooking should be done after the meat is put with the beans.

Bananas.—Many people bake the banana; but why spoil a food that is hard to digest when not cooked? I do not advise mixing any other food in the same meal with bananas, and I do not advise cooking them.

SALADS*

Tilden Salad.—Use equal parts of lettuce, tomatoes, and cucumbers, in the summer time. In the winter time, celery may be substituted for the cucumbers. Allow the vegetables to stand in cold water a couple of hours before using. Cut up together and dress with salt, olive oil, and lemon juice. A small amount of onion may be added, if desired.

If it is impossible to get tomatoes, use lettuce, celery, and cabbage, dressed in the same way. Mayonnaise dressing may be used, made according to recipe.

Aspic of Tomato (for winter salad)

1 can tomatoes run through a sieve	1 envelope Knox's gelatin

Heat tomatoes; add gelatin soaked. Pour into individual molds. Use instead of canned tomatoes in the above combination salad. It is not so juicy and gives the salad a better appearance, without sacrificing any food value. (Mrs. A. R. Gunder.)

Spinach Salad.—Fresh, cold, boiled spinach placed in nests of cold lettuce, seasoned with salt and lemon, makes a very tasty salad to serve with meat. Left-over asparagus or string beans may be used also. (Mrs. H. R. Worthley, Arlington, Mass.)

Vegetable Salad with Garlic.—Wash well two heads of lettuce; take and mince one clove or garlic, and rub the salad bowl well with the same; then take and slice three tomatoes, four cold boiled potatoes, one head of celery, and one cucumber if in season. Mix well together and dress with salt, olive oil, and lemon juice or

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*In cutting up the onion for any salad, if there is a disagreeable odor left on the hands after the salad is prepared, moisten the hands and rub with common table salt; then wash thoroughly. This will remove the odor of onion.

mayonnaise dressing. Cabbage may be added, if desired.

Slaw and Vegetables.—Slice one small head of summer cabbage very fine. Add the leaves of one good-sized head of lettuce, three tomatoes, one good-sized stalk of celery, and one cucumber if in season. Dress with mayonnaise or salt, lemon juice, and olive oil.

Slaw No. 2.—Slice one small head of summer cabbage very fine. Add the leaves of one good-sized head of lettuce, two sweet apples, and one stalk of celery.

Fruit Salad.—Place crisp lettuce leaves in a deep bowl, and fill with fresh-cut apples, celery, and pecans. Make all cold. Dress with either mayonnaise or Tilden salad dressing. (Mrs. H. R. Worthley.)

Pineapple Salad.—Lay a slice of pineapple on a few lettuce leaves. In the center of the slice place one-tablespoon of soft cheese, such as comes in tin-foil. On top of this scatter chopped nuts. Cover with mayonnaise dressing (cooked), with a cherry on top.

Egg Salad.—Slice hard-boiled eggs and place on lettuce leaves. Add finely cut celery and cucumber. Dress with mayonnaise dressing.

Carrot Salad

1 cup chopped carrots
½ cup chopped celery
½ teaspoon salt.
3 or 4 tablespoons canned tomatoes (use fresh if in season)

Mix all together well, and serve with lettuce leaves. Dress with either salt, olive oil, and lemon juice, or mayonnaise dressing. (Mrs. Louise Pirie, Chicago, Ill.)

Stuffed-Tomato Salad.—Peel six medium-sized tomatoes and remove the centers. Sprinkle the inside of each shell with salt. Invert, and let stand on ice till chilled. Fill with equal parts of walnut meats, celery, and apple, cut fine. Serve with French dressing on crisp lettuce leaves.

SALAD DRESSINGS

French Dressing.—Put into a dish or bowl a half teaspoon of salt and a dash of white pepper; rub the salad fork with garlic; add four tablespoons of olive oil, and stir with the fork; add one tablespoon of vinegar or lemon juice, mix well, and pour it over the salad.

Mayonnaise Dressing.—For a pint of mayonnaise dressing take the yolks of two eggs, one saltspoon of salt, a little black pepper, one-half teaspoon of dry mustard, two dessert spoons of lemon juice. Mix into a smooth paste in a bowl that has been well rubbed with garlic; then add three-fourths pint of best olive oil and two ounces of lemon juice. Stir in a few drops at a time, till the mixture is of a creamy consistency. Place on ice for a few hours before bottling or serving.

Salad Dressing

2 egg yolks	½ cup sugar
½ cup lemon juice	½ teaspoon salt
½ cup water	1½ tablespoons flour

1 teaspoon dry mustard

Mix dry ingredients. Beat the eggs and add to dry ingredients. Then add lemon juice and water. Cook in double boiler (not aluminum). Thin with whipped cream or sour cream. (Miss L. Matkins, Salt Lake City, Utah.)

Salad Dressing (small recipe)

½ tablespoon flour	1 cup milk
4 tablespoons sugar	Salt to season
1 egg	¼ cup lemon juice

¼ cup water

Mix as above, and thin with whipped cream or sour cream when cool.

Whipped-Cream Dressing.—Any of the prepared salad dressings on the market may be used with whipped cream. Use half whipped cream and half prepared mayonnaise dressing.

PUDDINGS AND DESSERTS

Apple Pie with One Crust.—Slice pie-dish level full of apples. Make a crust of one cup flour (scant), one tablespoon lard, one teaspoon baking-powder; water to mix well. Roll out and spread over apples. Bake until apples are tender. Place plate on top, and turn out with apples on top of crust. Spread over apples after mixing: one tablespoon melted butter, beaten yolk of egg, and one-half cup sugar. Beat the white of an egg and spread over all, and replace in oven to brown. (Mrs. E. E. Gantz.)

Prune Whip

¼ pound prunes
5 tablespoons powdered sugar
1/3 tablespoon cream of tartar
5 eggs

Stew prunes, stone, and cut up. Separate eggs, beat whites stiff, and sift in sugar and cream of tartar. Spread one-half the mixture in a buttered pan, and put in half the prunes, half the remaining mixture, and then the rest of the prunes. Cover with egg left.

Apple Jello.—Dissolve one package of cherry Jello in hot water. When partly set, take a large tart apple, cooked and grated, and the white of an egg, and beat all to a froth. Whip into the jelly with a fork. Serve with yellow sauce, made as follows:

1 cup milk
1 tablespoon sugar
1 egg yolk

Let milk and sugar come to boil; pour in beaten egg yolk; cool and serve. (Mrs. H. J. Lehman.)

Apricot Whip

1 pound evaporated apricots
2 egg whites
1 pint whipped cream

Soak the apricots overnight, after washing thoroughly. Cook them slowly in the water in which they have been

soaked. Pour off the juice. Mash to a smooth pulp. Beat the eggs to a stiff froth. Mix carefully with the apricot pulp. Pile in a baking-dish and set in oven for about five minutes. Serve in sherbet glasses with a spoonful of whipped cream on top. (Mrs. H. J. Lehman.)

Fruit Cocktail (for six persons)

1 can pineapple	Juice of 2 lemons
2 large oranges	Small bottle maraschino cherries

4 ounces powdered sugar

Cut up fruit, chill, and serve in sherbet glasses with a spray of mint. (Mrs. H. J. Lehman.)

Date Pudding.—Stone one pound of dates, and simmer slowly in one quart of milk. It may seem thin at first, but it will come to the consistency of pudding. This may be served with whipped cream and nuts, if desired. (Mrs. T. J. Hauptman.)

Peach Cobbler.—Put into a baking-dish one pint cooked peaches, with juice. Make a rich dough by taking one cup flour, one teaspoon baking-powder, and one inch cube of butter. Mix well together. Add enough milk to make a soft dough. Roll out, and cover the peaches. Put small pieces of butter on top, and bake twenty minutes. Serve with cream. (Mrs. H. J. Lehman.)

Rice Pudding

½ cup cooked rice	½ teaspoon salt
½ cup sugar	1½ pints new milk
3 well-beaten eggs	2/3 cup raisins

Bake one-half hour.

Baked Custard

1 quart milk	½ cup sugar
6 eggs	1 teaspoon flavoring (vanilla)

Nutmeg

Bake in cups. (Miss L. Matkins.)

FROZEN DESSERTS

Ice-Cream for Small Family

1 cup rich cream	½ cup sugar
3 cups whole milk	Flavoring to taste

Dissolve sugar in one cup milk, heating gradually to do so. Cool, and add other milk and cream. Set on ice until needed. To freeze, use three-quart freezer and break ice fine,* using one part of salt to three parts of ice. This can be done in about five minutes. (Mrs. A. R. Gunder.)

Apricot Sherbet

1 pint milk	1 pint water
1 pint sugar	1 pint canned apricots

Mix together milk, sugar, and apricots rubbed through a sieve. Peaches may be substituted for apricots. Freeze. (Mrs. H. J. Lehman.)

Maple Mousse

1 pint cream	Yolks of four eggs
1 large cup maple syrup	

Place the syrup in a sauce-pan, and stir into it the beaten yolks. Stir over the fire until the eggs thicken the syrup. Take from the fire, and place sauce-pan in a dish of ice-water. Continue beating until the mixture is light and cold. Whip the cream and drain, and add it lightly to the syrup. Either let stand for three or four hours packed in ice and salt in freezer, or freeze the same as ice-cream. If packed, more salt should be used than for ordinary freezing.

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*To break ice for the table or for ice-cream, have a bag of ticking made for that purpose, place ice in this, and beat with a hammer. This is speedy and avoids a muss.

CAKES

Sponge Cake

2 eggs well beaten
1 cup sugar, beaten with eggs
1 cup flour with
1 teaspoon baking-powder sifted
½ small cup hot water

Add hot water, a tablespoon at a time, and beat in flour-beater. Flavor if desired. Beat thoroughly, and put into oven quickly.

French Cream Cake

3 eggs
1 cup sugar
1 tablespoon cold water
1 teaspoon baking-powder
1½ cups flour

Beat the eggs and sugar together, and then add the cold water. Mix baking-powder in flour and add to mixture. Bake in two thin cakes. Split each cake while hot, and fill in with cream, prepared as follows:

1 pint new milk
2 tablespoons corn starch
1 beaten egg
Butter size of egg

Add corn starch, beaten egg, and butter to the milk, and cook until thick. Flavor. (Mrs. E. E. Gantz.)

Honey Cake

1 cup butter
2 cups honey
2 eggs
1 cup sour milk
2 teaspoons soda
4 cups flour

Melt butter and add to honey. Beat eggs and add to mixture. Dissolve soda in sour milk and mix; then add flour (sifted) gradually, and put in buttered, shallow pan. Bake in moderate oven. Will be about one and one-fourth inches thick. (Martha Bauer, San Diego, Cal.)

Honey Sponge Cake.—Mix one-half cup sugar and one-half cup honey. Boil until the syrup spins a thread. Pour over the yolks of four eggs well beaten. Beat this mixture until cold, then add one cup sifted flour, and fold the beaten whites of the four eggs into the mixture.

Pour into a pan lined with buttered paper, and bake forty-five minutes in a slow oven. (Mrs. H. J. Lehman.)

Golden Angel Cake (good for child's lunch)

1 rounded teaspoon baking-powder	1 cup sugar
4 or 5 eggs (4 will do, 5 are better)	1 cup flour

Break and separate eggs, putting yolks on the sugar in mixing-bowl to moisten it while flour and baking-powder are sifted four times. Beat whites to stiff froth. Cream yolks and sugar very lightly, add whites and flour quickly, and mix lightly. Bake in slow oven, as for angel-food cake. (Mrs. A. R. Gunder.)

Ginger Bread

1 cup molasses	1 teaspoon soda
1 cup brown sugar	1 teaspoon cinnamon
½ cup butter	1 teaspoon ginger
2 eggs	Small portion cloves
2 cups unsifted flour	1 cup boiling water, added last

(Miss Belle Walker, Denver, Colo.)

Plain Cake

1 cup flour
1 cup sugar
1 teaspoon baking-powder

Sift all together. In measuring-cup melt one-fourth cup butter. Add two eggs, and fill cup with milk. Add to dry ingredients. Flavor with vanilla, and bake in slow oven forty minutes. Use sheet-tin.

Plain Oatmeal Cookies

1 tablespoon butter	1 cup sugar
2 cups dry oatmeal (be sure to use steam prepared oatmeal, like H. O.)	1 teaspoon baking-powder
	1 egg
	1 scant teaspoon salt

Cream the butter and sugar together. Add well-beaten egg. Stir in H. O., baking-powder, and salt mixed. This mixture may seem dry at first. Drop about teaspoon quantities on buttered pan, and bake in quick

oven. Allow to stand in pan until cool. Then place over slight heat, and they will slip off pan easily. (Mrs. E. A. Van Deusen.)

Plain White Cookies

1 cup butter	3½ cups flour
2 cups sugar	3 eggs
2/3 cup sweet milk	2 heaping teaspoons baking-powder

2 teaspoons vanilla

Cream butter and sugar. Add eggs and milk. Add flour with baking-powder and extract. Mix soft, and roll. This makes a large quantity of cookies.

BREAD

Baking-Powder Biscuits

1 quart flour
2 heaping teaspoons baking-powder
1 scant teaspoon salt
1 tablespoon (rounded) lard or butter
Milk (unskimmed), enough (a pint or more) to make a soft dough

Do not knead. Roll or pat the dough out thin—about three-fourths of an inch thick—and then cut. Have oven hot, and, after putting the biscuits in, leave door open five or six minutes. Then close oven. A small piece of butter may be put on top of each biscuit. (Miss L. Matkins.)

Tilden Bread.—The above recipe may be used, and the dough put into the shape of a loaf, baked, sliced when cool, and toasted. Or the dough may be made into the form of sticks, and baked.

Baking-Powder Biscuits

1 quart flour
2 heaping teaspoons baking-powder
1 scant teaspoon salt
¾ pint cream
¼ pint milk

Mix flour, baking-powder, and salt, and lastly the cream and milk. Prepare for oven, and bake as above. (Mrs. E. A. Van Deusen.)

Baking-Powder Biscuits, Whole-Wheat

1 pint whole-wheat flour
1 pint white flour
4 teaspoons baking-powder
1 scant teaspoon salt
1 tablespoon (rounded) lard or butter
Milk (unskimmed), enough to make a soft dough

Mix as for the white-flour biscuits. If desired, the shortening may be omitted, also the milk, and three-fourths pint of cream and one-fourth pint of milk used in their stead.

Tilden Biscuits, No. 1

1 quart flour
Salt sufficient
1 heaping teaspoon baking-powder
2 tablespoons melted butter
Milk sufficient to make soft dough

Rub the baking-powder, salt, butter, and flour together. Add milk, and manipulate rapidly into a soft dough. The more quickly the bread is in the oven, the better. The biscuit dough should be teased, rather than rolled, into a sheet about one-half inch thick. Cut into strips one and one-half inches wide. Place in baking-pan. Have oven at a baking temperature, and get dough into oven as quickly as possible. (Mrs. J. H. Tilden.)

Tilden Biscuits, No. 2

1 quart flour
Salt sufficient
1 heaping teaspoon baking-powder
2 tablespoons melted butter
Equal parts of sour cream and sour milk to make soft dough
Enough baking-soda to neutralize the acid of sour milk

Mix flour, baking-powder, salt, and butter together. Use enough soda in sour milk and cream to neutralize acid. The acid is neutralized when the milk ceases to ferment or bubble on adding soda. Add milk to dough, and proceed as above to bake. The amount of soda used depends upon the sourness of the milk. (Mrs. J. H. Tilden.)

Graham Gems

1 cup milk
2 tablespoons sugar
2 teaspoons baking-powder
½ teaspoon salt
Graham flour—stir stiff

(M. S. Starr.)

Corn Bread Loaf

1 cup corn meal
1 cup white flour
2 tablespoons sugar
1 level teaspoon salt
1 tablespoon shortening
2 teaspoons baking-powder (heaping)
1 egg, beaten very light
1 cup milk (sweet)

Bake in brick loaf in slow oven about forty minutes. (A. M. Munson, Monrovia, Cal.)

Formula for Making Baking-Powder

69⅛ per cent cream of tartar
30⅞ per cent bicarbonate of soda

or

A little more than two-thirds cream of tartar and a little less than one-third soda, mixed thoroughly together, and sifted and resifted.

I am indebted for this formula to Mr. Charles Flammer, who is with A. Schilling & Co., of San Francisco. They are the producers of Schilling Best Baking Powder.

Raisin Muffins

1 cup flour
1 heaping teaspoon baking-powder
1 egg
1 tablespoon sugar
1 tablespoon butter melted
Milk enough to make it drop well from spoon

Mix flour, sugar, and baking-powder; add raisins, and then egg, milk, and butter. Drop into muffin pans. Bake in quite hot oven. Dates may be used in place of raisins.

Corn-Meal Muffins (makes six)

½ cup corn meal
½ cup white flour
Salt
½ teaspoon baking-powder
½ cup buttermilk
½ teaspoon soda
1 tablespoon sugar, if desired

Mix flour and baking-powder with salt. Mix buttermilk and soda with sugar, and then combine all. (M. S. Starr.)

CEREALS AND BREAKFAST DISHES

Oatmeal.—In cooking oatmeal, or any of the breakfast cereals, use about one part of the cereal to five parts of water. Cook until the mixture has reached the consistency of mush. Then dress with salt and butter, or salt and cream—no sugar.

Rice.—Rice should be cooked in a double boiler, in about the same proportion as for the cereal given above. Do not season until cooked, and then dress with salt and butter, or cream and salt. Pure cream should not be used on these foods; it should be in about the proportion of half milk and half cream.

Waffles

1 pint new milk	½ cup melted butter
2 teaspoons baking-powder	4 eggs
Flour	Salt

Mix milk, butter, a little salt and flour to make a soft batter. Add well-beaten yolks of eggs, then the whites beaten stiff, and lastly baking-powder. Beat fast for a few minutes. Bake quickly. The same may be used for griddle cakes.

Pancakes

1 egg	¾ cup flour
½ cup milk	1 teaspoon baking-powder
¼ teaspoon salt	

Beat egg with a spoon. Add milk, flour, and salt; baking-powder last. Bake on hot griddle. (Miss L. Matkins.)

FOR USING LEFT-OVERS

Chicken Loaf.—Take two cups of cold chicken chopped fine, and one-half cup of cold peas with their liquor, if any. Dissolve one envelope of Knox's gelatin, as per directions in booklet; add to the heated chicken and peas. Pour into a wet mold, and set on ice to insure slicing well. Garnish with parsley or mint, hard-boiled eggs, or lemon sliced. (Mrs. A. R. Gunder.)

Lamb, veal, or any other roasted meat may be used the same as chicken.

Vegetables (made in the form of soup).—

1 cup sliced raw carrot
2/3 cup sliced raw potato
½ cup sliced raw onion
½ cup sliced raw cabbage
1 large spoon Lima beans (left over)
1 large spoon green peas (left over)
2 ears green corn (left over)
1 tablespoon creamery butter

Put the carrots and cabbage on to boil in one and one-half pints of water. When carrots begin to be tender, add the potato, beans, and peas. When vegetables are thoroughly cooked and tender, mash and press through cullender.

Boil two ears of corn five minutes. When cool, run sharp knife the length of each row of kernels, and scrape with back of knife, leaving the husks adhering to the cob. Add to the vegetables already prepared. Reheat, and bring to the proper consistency by adding milk or cream and a little butter. Season to taste. (A. M. Munson.)

Vegetables (made in the form of salad).—Take the cooked cauliflower and break apart into small pieces. Serve with lettuce, dressed with mayonnaise or salt, lemon juice, and olive oil. Any of the left-over vegetables may be used with lettuce for a salad, dressed as above.

MISCELLANEOUS

Macaroni with Cream Sauce.—Break up twelve sticks of macaroni, put into a kettle of boiling salted water, and cook until tender. Drain, and serve with the following sauce:

SAUCE

1 cup cream	1 cup milk
2 tablespoons butter	2 tablespoons flour

Blend the butter and flour. Gradually add the milk and cream, and cook until thick. Season with salt and pepper. Less cream and more milk may be used, if not desired so rich.

Macaroni with Cheese.—Cook the macaroni as above, and, when tender, drain. Grate rather dry cheese very fine. Sprinkle over the macaroni, and set in a warm oven to melt the cheese. Do not have the oven hot enough to cause cheese to be stringy. If cheese is not desired, simply dress with cream and butter.

Cottage Cheese.—Allow the whole milk to stand until it reaches the clabber state, and then with an egg-beater incorporate as much air as possible. Do not let the milk stand after it has clabbered; beat it without delay—this will prevent its becoming bitter.

Clabber.—Pour fresh, clean milk into deep cereal dishes, and cover. Let this stand in a warm place, undisturbed, until as thick as baked custard. Then chill and serve. In the winter time, figs or prunes with this make an excellent breakfast. A little sprinkle of salt makes the milk taste like cottage cheese.

MENUS

SUMMER MENUS

Sunday—

Breakfast: Fresh fruit and milk.
Lunch: Toasted biscuits, honey, and milk.
Dinner: Lamb roast, summer squash, Brussels sprouts, Tilden salad.

Monday—

Breakfast: Flake food with melted butter, and milk.
Lunch: Prune-whip and fruit.
Dinner: Baked potatoes, Irish or sweet, new string beans or peas, egg salad.

Tuesday—

Breakfast: Fresh fruit and milk.
Lunch: Rice pudding (recipe, page 271) and milk.
Dinner: Steak, corn on cob, greens, slaw No. 2 (recipe, page 268).

Wednesday—

Breakfast: Waffles, honey, and teakettle tea.
Lunch: Pineapple salad (recipe, page 268), nuts, and teakettle tea.
Dinner: Rice, asparagus, spinach, Tilden salad.

Thursday—

Breakfast: Fresh fruit, cheese, and teakettle tea.
Lunch: Zwieback, butter, milk.
Dinner: Soft-boiled eggs, bacon, beets, carrots, fruit salad.

Friday—

Breakfast: Pancakes, honey, teakettle tea.
Lunch: Apple pie, cheese, and milk.
Dinner: Baked beans, corn on cob, spinach, Tilden salad.

Saturday—

Breakfast: Bananas.
Lunch: Ice-cream and cake.
Dinner: Impromptu soup, Tilden salad.

(Miss Frieda Gantz, Denver, Colo.)

WINTER MENUS

Sunday—

Breakfast: Oatmeal, or rice, and milk.
Lunch: Raisins, dates, or figs, and clabber or cottage cheese.
Dinner: Roast chicken, carrots, peas, fruit salad, olives, prune-whip.

Monday—

Breakfast: Fresh biscuit and honey, with milk.
Lunch: Apple pie (recipe, page 270), cream cheese, milk.
Dinner: Baked Hubbard squash, spinach, string beans, Tilden salad.

Tuesday—

Breakfast: Toasted biscuit (left-over), breakfast bacon, and teakettle tea.
Lunch: Apples, dates, and clabber.
Dinner: Chicken loaf (recipe, page 280), cauliflower, stewed tomatoes, spinach salad (recipe, page 267).

Wednesday—

Breakfast: Corn bread or muffins, honey, teakettle tea.

Lunch: Date pudding (recipe, page 271), nuts, milk.

Dinner: Macaroni (recipe, page 281), turnips, stewed onions, aspic of tomato salad (recipe, page 267).

Thursday—

Breakfast: Puffed wheat or rice, or any flake food, served with melted butter, milk.

Lunch: Vegetable soup (recipe, page 262), fruit.

Dinner: Steak or beef roast, beets, parsnips, slaw (recipe, page 268).

Friday—

Breakfast: Omelet (recipe, page 259), bacon, teakettle tea.

Lunch: Apple jello (recipe, page 270), nuts, and fruit.

Dinner: Lima beans, carrots, and egg-plant; Tilden salad.

Saturday—

Breakfast: Waffles (recipe, page 279) and honey.

Lunch: Tomato soup (recipe, page 262) and fruit.

Dinner: Pork chops, spinach, peas, Tilden salad, jelly, dessert of fruit.

(Miss F. Gantz.)

MISCELLANEOUS MENUS

HOLIDAY DINNERS

(Not strictly Tilden dinners and not to be repeated often)

Christmas Day—

Breakfast: Fruit, and clabber or cottage cheese.
Lunch: Tilden salad, fruit.
Dinner: Roast turkey, Irish or sweet potatoes, giblet gravy, turnips, carrots, Tilden salad, cranberry sauce, jellies or preserves, plum pudding, nuts, and candies.

New Year's Day—

Breakfast: Fruit, and clabber or cottage cheese.
Lunch: Fruit or salad, and milk.
Dinner: Roast turkey, Irish or sweet potatoes, giblet gravy, parsnips, peas, Tilden salad, grapefruit, jelly, mince pie, raisins, and candies.

Thanksgiving Day—

Breakfast: Fruit and buttermilk.
Lunch: Salad or fruit.
Dinner: Roast turkey, duck, or chicken, baked squash, Tilden salad, cauliflower, string beans, cranberry jelly, ice-cream, and raisins or candy.

A STRICTLY TILDEN HOLIDAY DINNER

Bluepoints on the half-shell, served with celery and olives.

Turkey; cranberry jelly; Tilden salad; turnips and carrots, or any two other cooked, non-starchy vegetables; jellies or preserved fruit, and mince pie or ice-cream.

A LUNCHEON

Cream-of-corn soup; cold roast lamb, mint sauce; Tilden salad; cheese; olives; frozen dessert, sweet fruits, or candy.

PICNIC LUNCHES

No. 1. Cold chicken; Tilden salad; olives or pickles; fresh, uncooked fruit; lemonade.

No. 2. Egg or nut sandwiches; Tilden salad; fresh, uncooked fruit.

No. 3. Lettuce sandwiches; hard-boiled eggs; celery; fresh, uncooked fruit.

EGG SANDWICHES

Grind hard-boiled eggs, and add butter, salt, and olive oil. Split cold baking-powder biscuits, butter, and place lettuce leaves on each half. Spread with egg mixture, and close. Lettuce may be cut up with the egg, if desired.

NUT SANDWICHES

Grind English walnuts or pecans, and olives, fine. Add lettuce, if desired. Mix well with a small amount of mayonnaise dressing. Use as filling for sandwiches.

TILDEN SALAD FOR PICNICS

Cut up lettuce, tomatoes, and cucumbers, after they have been made crisp by standing in cold water for an hour or so. Pack in jar, and, when ready to serve, dress with mayonnaise dressing, or salt and olive oil. (Miss F. Gantz.)

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